THE

WESTERN JOURNAL

OF THE

MEDICAL AND PHYSICAL SCIENCES.

JANUARY, FEBRUARY AND MARCH, 1832.

Essays and Cases.

ART. I.—*Essays on Medical Education, and the Medical Profession in the United States.*—By DANIEL DRAKE, M. D.

ESSAY V.

CAUSES OF ERROR IN THE MEDICAL AND PHYSICAL SCIENCES.—— LEGISLATIVE ENACTMENTS.*

The causes which prevent the discovery of TRUTH in the Medical and Physical Sciences, are too numerous to be embraced in a single essay; while many of them are too much concealed to be brought to light, by any but a man of genius and extensive observation. Those of which I propose to treat, are common, and therefore, susceptible of being exposed.

THE FIRST OF THESE IS THE DISPROPORTION BETWEEN THE STRENGTH AND GRASP OF OUR INTELLECTUAL FACULTIES, AND THE

*This Essay, with those formerly published upon the same subject, in this Journal, has since been published in a separate form; but as the edition is small, and the circulation consequently limited, we presume it will be considered a favor by the majority of our readers, to have the series completed in the Journal.

NUMBER AND VARIETY OF OBJECTS UPON WHICH THEY ARE TO BE EXERCISED.

In styling himself "lord of the creation," man has, perhaps, consulted his pride more than his powers. Certain it is, that he is not less dependent on the other objects of creation, than they are on him. These objects, either animate or inanimate, are, to him, absolutely innumerable—they touch him on every side, and stretch from him indefinitely in all directions. Their relations with him and with each other, are never the same for two successive moments; for the group which *now* surrounds him, will soon surround him *no more;* and while he yet contemplates it, changes of composition and character have taken place, which he could neither forsee nor prevent. Even individual objects confound him; and when actually in the focus of his physical or intellectual vision, undergo transformations, which surpass his comprehension, and teach him lessons of wisdom and humility. Suppose that all his observations were correct—would this enable him to arrive at philosophical truth? It would not, unless those observations were extended to all the individual qualities and relations of every object requiring examination. In constructing a system of science, it is not merely necessary to have no *bad* materials, but an adequate number of *good* ones. *Ignorance* is said to be better than *error*; but this adage refers chiefly to the condition of the mind, in regard to further improvement; for, in establishing a system of science, ignorance and error are perhaps, equally unpropitious.

Nature, moreover, is not only too *unlimited* in the *number* of her objects, but their structure and functions are too complicated to be studied without mistake. The very "clods of the valley" presents to the philosopher, in their composition, a problem which he cannot undertake to solve without error,—the grass, which he tramples under foot, when he stoops to examine it, offers appearances which he can neither understand nor report with accuracy—while his own body—an assemblage of intricate organs, mysteriously united, and harmoniously acting and re-acting on each other, from a principle of motion equally

mysterious, presents him with a case, in which the utmost exertion of his powers of observation and reflection will not secure him from false conclusions. If such be the inefficiency of genius, how deplorable must be the failure of imbecility:—let dulness, then, inquire with anxiety, and publish in doubt and hesitation.

ANOTHER REASON WHY WE SLOWLY ARRIVE AT PHILOSOPHICAL TRUTH, IS THAT WE SEEK IT WITHOUT DUE PREPARATION.

The chemist who attempts the analysis of compounds, without having previously studied the laws of affinity, prosecutes and ends his labors in error; while the pharmacopolist who alters the formulæ and recipes of the profession, without a previous knowledge of practical chemistry, decomposes and adulterates what he seeks to improve. In the science of Materia Medica, the man who expects to advance our therapeutick knowledge, without a previous acquaintance with the nature and chemical history of medicines, and their *modus operandi* on the body in health, falls into an error almost as great, as if he were to rely exclusively on that *preliminary* knowledge, to direct him as to their *curative* powers, which can only be known by the additional labour of administering them to the sick, and registering their effects. The operative surgeon who omits the cultivation of surgical anatomy, necessarily commits ravages upon those whom he undertakes and anxiously desires to relieve. Finally, the physician who aims at a knowledge of pathology, without first devoting himself to the study of the animal economy, and frames his rules of practice in his own office, instead of the chambers of the sick, may labour with diligence, but will never command success. His conclusions, although not always wrong, cannot often be correct. His prescriptions are like gilded pills of noxious qualities, in which the poison is concealed from the eye, but works desolation and death in the unfortunate patient.

In all these cases, and many others that might be cited, the cause of error, is a violation of the rule of philosophising which

commands us to proceed from the "known to the unknown."—It is not a deficiency of object, of time, of means or of intellect, that precludes the attainment of truth, but a neglect of due preparation, a presumptuous disregard of things that lie near, for those which are more remote; but which, when examined, cannot be understood, because they have been prematurely reached.

THE NEXT CAUSE OF FAILURE IN THE PURSUIT OF PHILOSOPHICAL TRUTH, IS MORE DEEPLY ROOTED. IT CONSISTS NOT SO MUCH IN THE DEFICIENCIES, AS THE ERRORS OF EARLY EDUCATION.

From the very nature of our associations in infancy and childhood, much of what we learn is erroneous; and throughout the whole period of our studies, except when engaged in the exact sciences, we daily imbibe falsehood with truth; and, unconscious of the combination, retain the whole under the name of knowledge. The tenacity with which the mind clings to these false impressions, is often not less than the facility with which, in early life, it receives them; and as they exclude an equal portion of real knowledge, and vitiate all our conclusions, their influence cannot be too strongly deprecated. It becomes both pupils and physicians, frequently to review their past studies, and anxiously to inquire into the circumstances under which their knowledge was acquired. [By such retrospection, carefully and humbly made, they will often be able to detect the occasion, or the *dictum*, which led them into error, and thus purify and fit their minds for the reception of new truths.

ANOTHER IMPEDIMENT TO THE ACQUISITION OF TRUTH, IS FICKLENESS OF ATTENTION.

Childhood is the epoch of mutability, in which impressions rapidly succeed and supersede each other. Children do not dwell long enough on any object, or group of objects, to acquire correct and ascertained ideas of their properties and relations, and hence they investigate badly. This propensity to pass from subject to subject, is a principle of our nature; and is designed

to introduce us to a first interview with the multitude of surrounding objects, with which it is the business of after life to become more intimately acquainted. But like every other principle of action, it requires control and discipline. Appertaining, as we have seen, especially to childhood and youth, it belongs to a good education, to keep it subordinate in manhood. Those in whom this is neglected, grow up deficient in habits of protracted investigation, and seldom dwell long enough on any subject, to comprehend it fully. Such persons may be styled audlt children, and the number is not a few. Gazing for a moment on the superfices of many objects, but looking into the deep structure of none, they seldom perceive the truth, as in most cases, it lies far beneath the surface.

ANOTHER CAUSE OF ERROR CONSISTS IN FORMING CONCLUSIONS, WHILE WE SHOULD STILL BE OBSERVING.

Persons of this intellectual temperament may see deeply, but they look in one direction only; and of course, form an opinion, before all the facts in relation to the case, have been reviewed. They might be compared to the judge, who decides on the testimony of one of the parties, unconscious that another waits for an audience. The judgment may be honest, and a correct inference from the facts before him, but still it is wrong. Many of the errors which vitiate the experimental sciences, as well as the affairs of social life, are referable to this head; and as the authors of them are conscious, not only of loving truth, but think they have investigated their premises warily, it is not uncommon to see them cling with pertinacity to their conclusions. A singularity exhibited by such persons is, that at different times, they are the honest advocates of opposite opinions. The facts, which at one period were presented to them, and led to a particular inference, are forgotten; and, subsequently, those of an adverse tendency are casually offered to their notice, when with equal honesty and promptness, they stand forth as the champions of a contrary doctrine. The fault of this character, consists in imperfect and limited suggestion—

a sort of intellectual *strabismus* or squinting—by which the field of mental vision is narrowed, and the partial mistaken for the universal. The opinions of such men are entitled to respect for their sincerity, but not to adoption for their soundness. They may be true, but should always be presumed erroneous. The proper remedy is a constant recurrence to protracted and comprehensive research; that all the facts in the case may be fully represented in the deduction—when this is realized, the judgment is true, and then only.

THE NEXT OBSTACLE TO THE DISCOVERY OF TRUTH, IS VIVIDNESS OF FANCY.

Many cases of madness have seemed to grow out of this exuberance. It tends to abstract us from external objects, and causes inattention to the impressions which they make, or might make upon us. Such philosophical fanatics, require but a glimpse, to afford them, as they believe, an accurate knowledge of the properties and relations of the most complicated group of objects. Their senses do not resemble a camera obscura so much as a magic lanthern. A single sensation can spring a long train of ideas; and cause new creations to succeed each other, like the spectres in that machine, and generally with as little conformity to truth and nature. Philosophers of this excessive mobility, are right only by accident, and it is equally accidental, if they discover themselves to be wrong. They do not so often change from error to truth, as from one illusion to another. They suppose themselves men of genius, when, in fact, they are endowed with but one of its attributes. They are great builders of hypothesis, but all their pyramids are inverted. They never investigate closely, but to sustain a pre-conceived notion, and then instinctively reject every fact which militates against it. Their ardor and obstinacy are often so great, as to inspire confidence in their opinions, and make proselytes of those who should labour to expel their delusion, and bring them back to the sober realities of the external world. Such an enterprise, would, however, in most cases, prove ineffectual; and

hence students and young physicians should guard vigilantly against the earliest illusions of this *ignis fatuus* of the mind.—If it once attract them from the straight and narrow path of inductive philosophy, their faculties will speedily glide into the mazes of error; and, if practitioners, their prescriptions will become sentences of death, instead of warrants of health and life.

THE NEXT OBSTACLE TO THE DISCOVERY OF TRUTH, IS IMPATIENCE.

Patience, which is not a greater virtue in morals than in science, has been brought into disrepute, chiefly by the sect of philosophers which I have just described; if they indeed, can be called a sect, who unfortunately are never embodied, but contaminate all others. It is difficult to bring patience into favor and fashion. Being very commonly an attribute of inquisitive dullness, many young men of lively feelings, have not courage to practice it, lest they should be suspected of belonging to that class, in which no human being ever yet enrolled himself without a struggle. The highest eulogy that could be pronounced upon patience in research, is that it constitutes the great secret of that success, which men of inferior talent so often attain. It *must*, therefore, be a powerful auxiliary, and why should any man reject its assistance? To say that strength of intellect can render it unnecessary, is not true, unless that intellect be employed upon inferior objects; and genius should condescend to dispute with stupidity, for the subjects which legitimately belong to the latter. In his own elevated sphere, the ablest philosopher will find patience essential to the development of truth. Nature is not an oracle of Delphi, to be bribed or flattered into responses. Her severe majesty requires that she should be interrogated patiently, and listened to with meekness; and even then thus besought, her replies may not always be as prompt and explicit as we could desire; but they will neither be interested nor erroneous.

At the risk of being found tedious, I must appropriate some

additional paragraphs to this part of our subject. There are students and physicians, intrinsically industrious and patient in the exercise of their *mental* powers, who, nevertheless, have a fastidiousness in regard to manual labour, especially what is unpleasant, which materially interferes with the discovery of truth, in their own and its auxiliary sciences. Let us pause for a moment, and, notwithstanding the enumerations in our previous essays, inquire what they are: Anatomy and Physiology, Sugery, Clinical Medicine and Materia Medica, Chemistry and Pharmacy, Zoology, Botany and Mineralogy, Physical Geography, Geology, Pneumatics, Hydrostatics, Meteorology, Astronomy, Mechanics, and the Chemical, Mechanical, and Fine Arts, are, in fact, but a part of them. Physical science is, indeed, the science of material nature, and comprehends as its own proper objects, not only the globe, and every thing living and dead, within its bowels or spread over its surface, with all which constitute or inhabit its atmosphere; but also, the boundless system of celestial orbs, which, as suns, and planets, and satellites, and comets, enliven the dark and dreary regions of infinite space. Now, let us place before ourselves, an imaginary picture of the objects to which I have referred, and then contemplate their number, varieties and analogies, their relative positions, their individual properties, their varied uses, their attractions and repulsions, their dependencies on each other, and the influence which man exerts on them, and they on him, and we shall be prepared to estimate the value of our remaining attainments, if an acquaintance with the forms and qualities of matter were expunged from our minds. But this would be impossible, for material nature is the foundation of all our knowledge, and in proportion as we neglect its study, science becomes uncertain and unsubstantial—speculation supersedes experiment—hypothesis replaces theory—and syllogisms usurp the office of induction.

Our proper business, then, is the study of material objects, and these must be examined by our organs of sense, to be rightly understood. If this examination be reluctant and

superficial, the results will of course be imperfect. If we come to it in a temper of fastidiousness, and shrink from the necessary exertion, because we may have been unused to manual labor, or some parts of that which should be done are unpleasant or repulsive, we shall seldom grasp the truth. If we suppose, that not having been compelled to labor for subsistence, but, nursed in the lap of wealth and luxury, we may leave the drudgery of science to hands already soiled in the field, or hardened in the work shop, we shall, at last, be disappointed in our dearest hopes; and mortified to see those whom habits of toil and application, have prepared to vanquish every difficulty, stretch immeasurably beyond us, in the race of emulation and professional fame. In the pursuit of physical truth, an examination of the objects of nature, is the first and greatest work; and he who brings to it the best manual dexterity, the greatest self-dependence, and most untiring industry, with the fullest command of his feelings, in relation to scenes and objects, which are often offensive and sometimes loathsome, will, *cæteris paribus*, be most successful in his researches. It is a prevalent and pernicious error, that the labors of the devotee of physical science, are chiefly intellectual; or that we may view nature from select positions, and acquire all the necessary knowledge, by perspective views. A much closer intimacy is requisite to a full acquaintance. If we read the biography of the greatest men, who have adorned the profession, or dignified the ranks of physical science, we shall find them almost as remarkable for their labours of body as of mind. The former, directed to the objects of their ambition, supplied the *pabulum*, by which the latter was cherished. Such is the order of nature, and no student or physician, who prizes truth or reputation, should ever depart from it.

PRIDE IS A STUBBORN OBSTACLE TO THE DISCOVERY AND RECEPTION OF TRUTH.

Meekness of spirit, is scarcely a more necessary predisposition for the reception of divine, than scientific truth. The self-

sufficient philosopher never enquires into his defects. When he contemplates himself, it is rather to admire his excellences, than to correct his imperfections. He views the former with a mote, the latter with a beam in his 'mind's eye.' He employs a mirror, which reflects only the beauties of his character; and should it, at any time, become true to nature, he turns from the unwelcome glimpse of his deformities, as from things to be concealed and forgotten, not corrected. To expose them to society would mortify him still more. He is even reluctant to display his improvements, as they would imply previous defects of knowledge, and approximate him to mortals of a common mould. A student of this class often prefers to remain ignorant, rather than appear so; but it is, especially in advanced life, that pride interferes most fatally with improvement in science. In youth, vanity sometimes tempers this indomitable passion; but in process of time, it not unfrequently subdues every opposing sentiment, and, becoming fortified by habit, governs the character of the individual, with the spirit of a tyrant. Hence the obstinate perseverance in ancient errors, the cynical sneering at late discoveries, the dogmatism, the pomp and the real or affected scepticism, which in medicine, so often render old age ridiculous, and sometimes seriously impede the dissemination of new truths. I know of no cure for this *fungus hæmatodes* of the mind, when it has become deeply rooted, but in youth it may be eradicated, and every student should seek to cast it out.

EXCESSIVE DEFERENCE FOR AUTHORITY—IN SOME DEGREE THE OPPOSITE OF PRIDE—CONTRIBUTES EQUALLY TO THE PERPETUATION OF ERROR.

An overweening regard for authority in the sciences, is the offspring, either of a slender understanding or a timid spirit, still further enfeebled by bad education. It shows itself, not merely in an unsuspicious assent to alleged facts—a pardonable credulity—but in an implicit adoption of the conclusions of eminent men, when we should examine for ourselves, both their premises and reasonings. The latter species of intellectual servility

has done much harm to the profession, and through it to society at large. In general, we are under the necessity of receiving as true, that which the archives of medicine present to us as fact; for it is impossible to repeat every experiment, and many observations can never be made a second time, because the same combination of circumstances may not recur; but nothing should be taken on trust, when it can be avoided; as that which is reported correctly, may have been seen incorrectly, and the professions of truth with which a subject is introduced, may be designed by the author, to protect it from suspicion. But the *reasonings* of an author, a professor or a colleague, are legitimate subjects of scrutiny, and he who passes timidly over them, admits an inferiority, which fearless investigation might convince him did not exist. He becomes the slave of opinions, instead of the servant of truth; and contributes not more to the diffusion of falsehood, than to the degradation of his own character. As the opinions of great men have the widest circulation, and receive the most implicit adoption, it becomes all who can be incited to the duty of examining what they are about to receive, to subject those of eminent writers, to a carefuller criticism than is necessary for the speculations of authors of lower powers, and more limited fame. If this had been always done, the genius which has been devoted to the profession, must have carried it far beyond its present elevation.

A DEFECTIVE LOVE OF TRUTH, IS ANOTHER CAUSE OF ERROR IN THE PROFESSION.

The love of truth, although an original principle of human nature, has various degrees of native energy; and from the operation of several causes, may decline, till we come to look upon error with complacency, and at last not only tolerate, but publish falsehood. Very few principles of our nature, are, indeed, beset with so many causes of corruption. I will name but two—self-interest and self-love. The combined influence of these, on the love and practice of truth, in morals and society at large, is seen and admitted by all; and it is equally great in

the medical sciences, where, although less deprecated, it is perhaps still more mischievous. Self-interest and self-love, it is true, sometimes animate us in the pursuit of truth; but it is only when reward awaits its attainment, or disadvantage or disgrace would flow from failing to reach it. Unhappily for the interests and dignity of human nature, such cases are few in number; and hence these restless and unwearied principles of selfishness, are more seldom enlisted in the service of truth than falsehood. While students, it is uncomfortable to feel, and sometimes mortifying to acknowledge, that we do not fully comprehend a subject; and, strange as it may seem, we, now and then so far compromise with the love of truth, as to pretend, and, perhaps, sometimes almost believe, that we are less ignorant than is the fact. After having passed through our pupilage, and taken rank with the initiated, it becomes our business to interpret nature to those below us; and as we should then consider it still more discreditable to be at any time found wanting, the motive to practice imposition is strengthened.—But it is as physicians and surgeons, when we expect to receive patronage, less in the proportion of our true knowledge than of our plausibility, that the temptation to deceive, both ourselves and others, acquires an irresistable and frightful energy. As the naturalists find it necessary to supply from analogy, the lost parts of a Mammoth skeleton, before it can satisfy vulgar curiosity, so physicians feel the importance of presenting an aspect of perfect knowledge, when they would acquire public confidence. This imposture, not often detected, is still more seldom frowned upon by the hoodwinked community, whose unreasonable demands have invited it; and, as impunity promotes the repetition of crime, one imposition follows another, till the love of truth falls gradually into ruins; and the heart once honest and open, becomes at last polluted with the principles of a criminal selfishness. The guileless lineaments of unsophisticated nature, are now exchanged for the studied imitations of art; and the question no longer is, what does truth require, but what will best administer to the insatiable cravings of self-interest, and where lie the moral limits which cannot be overstepped, with-

out injury of reputation?—Mark the physician who has thus degenerated, and you will no longer perceive in him any sacred veneration for professional truth. If he purchase books, it is rather to *appear* learned, than to become so; and when he reads, it is more to extend his notoriety than his knowledge. He may not purposely avoid the truth; but he no more trims his midnight lamp, and diligently compares the recorded observations of others, with his own, made through the day; he relaxes in his efforts, to note down the facts which fall ander his observation: or, what is more criminal, suppresses or perverts them, to suit his prejudices, or display his conduct and character in a favorable aspect. In his practice, he often omits the performance of duties, because they may be servile and troublesome; when, from such omission, the truth could not be ascertained, nor his patient treated with success. In cases of extreme danger, he will neglect the investigations that are indispensable to a true knowledge of the case, and occupy himself on the means of satisfying those interested in the result, that he has done all that could be done, if not all that was required. He magnifies the danger through which those have passed, who appeared to be seriously ill when they were not; and expects thus to balance the account of profit and loss, when a patient dies whom he ought to have saved. In the application of remedies, he yields to prejudices and apprehensions, which it is his duty to encounter, and, if possible, overcome; and neglects the use of means which are necessary to the safety of his patient, lest censure should follow their unsuccessful employment. When required to confer with another physician, he looks more to the preservation or extension of his fame, than the life of the patient; now doubly jeopardized, by the complaint and the consultation. If the attending physician, he makes false or imperfect statements—adding or subtracting, in his narrative of the past treatment, such items as he thinks necessary to a favorable estimate of his sagacity;—if the consulting physician, to acquire a name for liberality, he sanctions with criminal courtesy whatever has been done, and recommends its continuance; or rejecting the whole, aims, like a cannibal, to fatten his popularity on the de-

spoiled reputation of an able, but artless associate. Finally, should he at any time attempt to lay before the profession the results of his experience, he writes as certain artists paint, merely for effect;—looking to an increase of his reputation, more than the dissemination of truth. Or, captivated by the prospect of temporary applause, rather than the desire for permanent fame, his histories are not made correct transcripts, even of his experience; but resemble caricatures, which strike the vulgar by the disproportion of their parts, or the unnatural depth of their light and shade. Were they equally harmless, it would be happy for mankind, but unfortunately, they are poison cast into the fountain, and before its waters can purify themselves, hundreds may drink and die.

A DEFECTIVE AMBITION, IS THE LAST SOURCE OF ERROR TO WHICH I SHALL REFER.

The want of ambition, contributes signally to retard the progress of medical science. A majority of those who belong to the profession, are destitute of the excitement which it imparts; and, consequently, deficient in those exertions by which only the profession can be advanced. In the selection of boys for the study of medicine, no reference is, in general, made, either to their talents or aspirations; and most of them grow up and go down to the grave, inemulous of distinction, and blind to every recompense, which cannot be recorded on their ledgers. The circumstances of our country, have a large share in the production of mere routine practitioners. In the midst of the general diffusion of political and religious knowledge, literature and science are but little cultivated or respected, except in the larger towns and about our seminaries of learning; and hence the acquirements of medical gentlemen are not always properly appreciated. Emulation, moreover, requires contiguity and contact; and is most energetic, where the pressure of rivalship is greatest. But in the United States, from the sparseness of population, and the small size of most of the towns and villages, physicians are too detached

and scattered, to excite each other's ambition, or to concur in operations for the improvement of the profession. Thus, many whose ambition, under a different state of things, might have prompted them to great and successful efforts, while away their whole lives, without having the dormant fires of their ambition once kindled into flame. In the cultivation and practice of a science which is imperfect and speculative, no principle of action is so powerful as ambition. The love of money will animate physicians in the acquisition of business, but not to the discovery of scientific truth. The pursuit of the latter, often, indeed, interferes materially with an accumulation of the former—which, with a few exceptions, has flown into the hands of those who have neglected the cultivation of the profession. The love of knowledge is a nobler affection, but cannot be relied upon to promote the discovery of truth, or extend the boundaries of our science. Physicians of this class, delight in truth and detest error; but having more of contemplation than action, spend their lives in *acquiring* knowledge, and neglect its appropriation. They are misers who hoard *fine* gold only; but depend exclusively, on an increase of their stores, for the pleasure which should flow more copiously from expenditure than accumulation. They industriously gather what they are, in general, too indolent to apply, or even bequeath; living as it were, for themselves only; and manifesting a character of refined and unoffending selfishness, which we can neither blame nor applaud. The body, the labors and the fame of such an one perish in the same grave; and the history of his virtues; his taste and genius—his attainments, purified in the furnace of a noble understanding—his unextinguishable love of truth—and his day dreams of patriotism—are written bnt on the narrow tablet of the grave, and read by those only, who visit the mansions of the dead. I would not envy such an one, the gratification which he experiences, in his inemulous retirement from the theatre of ambition and usefulness; nor can I agree that the love of posthumous reputation, should be classed among the vanities of human life. The lover of truth, who is content with its acquisition, has less

enjoyment, than he who superadds useful application to accurate attainment; and of all the original principles of our nature, the desire of honorable fame, is not only most beneficial to the world, but one of the most ennobling to the soul which it animates.

We must not confound *this* ambition, either with pride or vanity. The former preserves us from little actions, but never impells us to great—the latter contents itself with vulgar admiration, and incites us to those performances, only which bring immediate applause. Pride looks to society for no reward, either present or prospective: vanity undertakes nothing on trust—is not willing to rely on posterity for payment—exacts daily returns from the surrounding multitude, and slakes its thirst with draughts of flattery and adulation. Ambition, in itself, has no element either of good or bad. It works as a mere animating principle; and rouses us to deeds of desperation and death, or schemes of beneficence and life, according to the moral sense and the objects of each individual. When it subjugates the heart, and arrays itself in the armor of misanthropy, it delights in nothing, but new advances over a terrified and prostrate world; but subordinate to the heart, it becomes the bright sun of society, and cheers and vivifies whatever its beams may fall upon. Such is the ambition, which should glow in the bosom of every physician; he would then see no mountain too lofty to be scaled, nor so overhung with murky vapours, that he could not discern the clear and beautiful sky that stretches out beyond its summits. Warmed by love for mankind, enamoured of his profession, and animated by the hope of rising higher, than all who had trodden its rugged steeps before him, he would move on his upward march, with a never tiring step. Not too proud to employ every honorable means, however humble; nor so vain as to loiter, by the way, to catch the syren sounds of popular applause, he would see and think and dream of nothing, but the grandeur which surrounds the objects that allured him on. He would suppose all the time, that these being attained, he might sit down in the midst of them, and give himself up to enjoyment. But the man of true am-

bition, never stops to revel in the camp of victory. He delights in action and anticipation, and looks with rapture from his new elevation, at the distant and loftier pinnacles, which till then were hidden from his view. Finally the physician of honorable ambition, has no quiet sleep while any are before him. He would not keep them back, but advance himself—he does not regard them with envy, but emulation. He even extends to them his *respect*, but this requires no ordinary effort, and the magnanimity of his character, is seen in the candor, with which he can bring himself to view their merits, and identify their fame with the glory of his profession.

I shall conclude this declamation on some of the causes which oppose the progress of medical science, in the United States, with a passing remark on two or three points that merit animadversion.

1. It deserves to be considered, how far the union of the practice of Physic, Surgery and Obstetricks, in the same individual, has contributed, in the United States, to affect the progress of the profession.

It is a plausible opinion, that these branches should be united, in the same individual, as they are manifestly connected in theory. Nearly the same principles of Physiology and Pathology are common to the whole, thongh they differ in Nosology and Therapeuticks. No one can be prepared to practice either, without a full elementary acquaintance with the whole. But when we come to the business details of the profession, who is capable of so executing them—still cultivating its general principles—as to become great in all? Certainly none, but men of genius and intense industry. All others sink into mere routinism. From an attention, too incessant and diversified, to the details, they neglect the philosophy of the profession; until, at last, they can give but few reasons for their many prescriptions. It will not be denied, that such practitioners may do a great deal of good, in the midst of some mischief; but they are not the men, who advance the science. They are mere operatives, and work on the plans of others. They are unacquainted with the *defecti et desiderata* of the

profession. They have not time, nor, after a few years, ability to study their cases, in connexion with its principles; but rely exclusively on their own experience, and the recipes of their brethren. They never originate schemes of reform or improvement, project original experiments, or develope new elements of knowledge. All this results from too much variety in their practical operations; for which the appropriate remedy, would be concentration upon some part of the profession. To have depth, the diffused waters must be gathered into a narrower channel. The man, possessing even ordinary talents, who devotes himself to Surgery, Medicine, or Obstetricks, instead of the whole, may carry into his practical operations, an accurate and comprehensive knowledge of principles; thus making his experience available, to the rectification of the errors which vitiate them—augmenting their limits, and defining their uncertain landmarks.

On the whole, I am disposed to conclude, that the want of this concentration, is a cause that has retarded, and continues to retard, the progress of the American profession, in scientific improvement; though unquestionably, its members are eminently practical, and generally efficient in their efforts.

2. Among physicians, surgeons, and obstetricians, there are two classes, who run into opposite extremes. They might be termed the philosophical, and practical or empyrical. The former delight in general principles, and with difficulty concentrate their attention upon the practical maxims of the profession: the latter, find such principles above their reach, or deny their correctness, and occupy themselves, exclusively, on the receipts and dogmas of practice. Each sect is right as far as it goes; but each is imperfect. The philosophy of the science is found in its general principles; but we cannot practice correctly without rules, and principles are but the theorems by which rules are formed. We must understand the former to be medical philosophers, and act by latter to be clinical practitioners. With principles, only, we are diffuse and ineffective—with rules alone, either timid to a fault and *suffer* our patient to die, or rash and reckless, and destroy many

who might have lived, had death fought single handed against them.

3. The number who venture on the practice of physic, is indefinitely greater, than those who profess to practice surgery in its higher branches. This arises, in part, from the greater number of clinical than surgical cases; but a very different cause, likewise contributes to the disparity. The operations of surgery, expose the ignorance of the practitioner; and, when unskilfully performed, injure his reputation and subject him to the penalties of the law. But in the practice of physic, the detection of errors, by the people, is generally impracticable. Hence many will confess their ignorance of the former, while all are ready to profess a competent knowledge of the latter; although, in reality, physic requires in the aggregate, more profound and varied attainments than surgery. How important it is, then, that the physician should be a conscientious man, who has other motives for investigating the principles of the profession, than the fear of having his ignorance detected and exposed! He should shrink with horror from the idea of prescribing on false premises, or by loose and unphilosophical analogies. He should recollect, that human life is at stake; that a human being, in extremity, is confided to his skill and honor, and that an ignorant or presumptuous stroke of his pen may translate that confiding fellow creature—perhaps his bosom friend—from time to eternity, to confront him with damning testimony on the day of final retribution. Although such practice is not legally felonious, it deserves unqualified denunciation; for in a moral view, where lies the line of distinction, between criminal prescriptions, and those which prove fatal, through the criminal ignorance of their authors? I say *criminal* ignorance, for although, in the abstract, there is no criminality, in being unacquainted with the truth, yet, in the practice of medicine, to be ignorant of facts and principles, which lie within the grasp of common minds under common opportunities, and still to undertake that, which they, only, who are acquainted with those facts can accomplish, is to forget the divine maxim of doing to others as we would be done

unto; and, literally to wage war upon human life; not in malice prepense towards any individual, but with the senseless and fatal impartiality of an epidemic disease.

Essay VI.

No one can dispute the propriety of placing Medical schools under the supervision of the law; and rendering them amenable to the sovereign power of the state. It will avail but little, however, that they are thus authorized, if that power does not govern them with liberality, vigilance, and wisdom. They should be regarded, not as private but public incorporations; designed for the benefit of society, rather than of the individuals who compose their faculties. A medical professorship, is indeed a public office, and should be filled or made vacant from no other motive than the general good. No claims for admission, but those founded on talents and general fitness, should ever be allowed; and the discovery of a failure in these, and this only, should be regarded as a justifiable ground of dismissal. The principle of rotation in office, should never operate to effect the removal of a competent professor.

When a State is about to institute a medical college, and subsequently, it should have a special regard to several points.

1. The location. The proper site for such a school, is a populous city. Uncommon talents in the professors, may secure, for a time, the prosperity of a school in *any* situation; but, misplaced, it is liable, like a plant in barren soil, to perish or decay, when committed to unskilful or indolent keeping.

2. The endowment. Some kind of revenue or an actual appropriation of adequate amount, should always accompany the charter; not as a *bonus* to professors, but to afford them the means of research and illustration.

3. A hospital. This should be as ample as possible, and so planned and regulated, as to be made a clinical school, and a school of morbid anatomy. The rights and duties of

the professors and pupils, should be clearly specified; and both made so comprehensive, as to secure for the sick, the best possible attendance; while they, in turn, should repay society and the profession, for the charity they receive, by the benefits which their cases can be made to confer on the pupils.

4. The supplies for the anatomical hall. Exhumation should be prohibited, under the severest penalties, rigorously enforced; but all who were found dead in the streets or fields, or who die in hospitals, poor houses, houses of correction, jails and penitentiaries, and are not claimed by friends, and taken away, to be interred at their own expense, should be delivered to the professors of the college. This would abolish the practice of disinterment, which, otherwise, *must* and *will* continue, until other sources of supply are opened. The opposing demands and denunciations of society, on this subject, indicate that the present is, indeed, but the age of transition from a lower to a higher grade of civilization. Society, in former times, did not require anatomical knowledge, in those to whom it intrusted the limbs and lives of its members: at a future period, it will afford to its medical guardians, the means of acquiring the knowledge it demands.

5. The Trustees. These should be chosen for their qualifications. They should not only be men of talents, intelligence and literature; but from taste, inclined to devote themselves to a faithful execution of their stewardship. Above all, they should be men of honor and impartiality.—tolerating in their hearts neither prejudice nor prepossession—and conducting the institution with a sole view to the public good.

6. The accountability of the trustees to those from whom they derive their authority. This should be made as rigorous as possible. The trust being strictly eleemosynary, should be confided to no board of trustees any longer, than they are found to render it beneficial to those for whom it was granted. Annual detailed reports should be required from the Board, accompanied by reports from the Faculty, and these

should be submitted to the scrutiny of select and competent committees, with instructions to investigate closely, and report impartially, on the state of the institution; all which should finally be published, together with the new acts of fostering or corrective legislation, which they may have suggested. By these means, abuses would be detected, and a powerful motive infused into the trustees, to act with the skill, moderation, and justice, which befit those who should be accountable to public opinion, as well as the laws.

Thus founded and governed Medical Schools, are a blessing to mankind, and reflect the highest honor on the governments from which they emanate.

A state which establishes and conducts a medical institution on these principles, will have little need, of what are styled laws to regulate the practice of physic. It will regulate and depurate itself. If the fountain of supply be pure, the stream will seldom be tainted, and its waters will require but little clarification. Should they burst forth in a turbid condition, the work of purification will be found both expensive and difficult. More than half the states of the Union, have laws to regulate the practice of medicine; but I am by no means convinced, that they have ever done any real good to the profession or society. New-York and Ohio have such laws: Virginia and Kentucky none. It remains to be shown whether the profession in the two former, is more respectable than in the latter. I am disposed to believe it is not. Laws which admit to the practice of medicine, those who have not graduated, give many young men a passport to the confidence of the public, who do not deserve that confidence; and could not easily have acquired it without a license. Those, moreover, who are rejected by boards of censors are, in most cases, sustained by society on that very account; and the profession is charged with sinister views. The rejection of a candidate for a degree, by the Faculty of a college, brings him into contempt; but the refusal to grant a license, secures for the applicant a portion of public sympathy and patronage. The reason is not obscure. When *all* the physi-

cians of a state are incorporated, and boards of examiners are appointed by ballot, a great number, inevitably, belong to the corporation, and too often to the examining tribunals, whom the people do not regard as qualified; and they are therefore, not inclined to look quietly on the rejection of a young man, not inferior, perhaps, to those who have put a veto on his aspirations. It is difficult, indeed, for these bodies to establish an authority, that society or even the profession, will recognize; and equally difficult, for them to maintain internal harmony, or adhere to a standard of uniformity in their decisions. The office of censor is essentially one of rotation, and generally, becomes an object of ambition. Its acquisition is often attended with circumstances of management, that are discreditable to the profession; and its administration, still oftener, perhaps, so conducted, as to offend the feelings of those, who have an immediate interest, in the admission or rejection of such candidates, as are their own pupils. Thus feuds are generated, and a whole district degraded, by reciprocal charges of malfeasance in office; which, whether true or false, disturb the harmony of a profession, whose very efforts to lie still, keep it forever agitated. At last, what is a license but a certificate of inferiority? A licentiate may be a good physician, and become a great man, but still there is an original technical difference between him and a graduate, which every body recognizes; and, as far as testimonials are concerned, he is one, who has not made the attainments, which entitle him to a doctorate. Too many, however, who are thus admitted, and, legally, become members of the profession, rely on the hope, that the mode of their introduction, will be at length forgotten; and never afterwards, seek to qualify themselves for those university honors, to which otherwise they would have aspired.

On the whole, I am convinced, that a state should acknowledge none as members of the profession, who have not graduated; unless it could not have a medical school, and was so remote and insulated, as not to receive an adequate supply of educated physicians. To establish a school, and then to

admit into the profession, by legal enactments, those who have not availed themselves of its advantages, is inconsistent, and playing at cross purposes.

At the same time, I would not enact penalties against those who choose to practice without a diploma: for such laws are never carried into effect, and, especially, are opposed by the people; who often sustain a man, when thus persecuted, as they call it, who would, otherwise, have made but little progress in society. For all practical purposes, it would be sufficient, not to allow him to appear in courts of justice, for the collection of his professional earnings, on the sole ground, that he could not show a diploma from an authorized university.

The profession of the Apothecary, should receive attention from our legislatures. The practice of keeping and putting up their own medicines, is going rapidly out of fashion, among the physicians of all the cities and larger towns of the Union. In consequence of this, the compounding of prescriptions, is passing from students of medicine, to the clerks and shop keepers of druggists, most of whom, as well as their operatives, are mere merchants, almost entirely ignorant of the branches of science connected with the business which they follow; and equally destitute of classical learning.

They who put up physicians' prescriptions, should be acquainted with Botany, Materia Medica, Chemistry, and Pharmacy, and possess such a knowledge of the Latin language, as would enable them to decypher, with correctness, what is sent to them. If ignorant in these respects, they are, perpetually, liable to make mistakes, which may defeat the objects of the physician, and even destroy the life of the patient.

The law should, indeed, not only require apothecaries, who undertake to compound the recipes of the profession, to be qualified, for that nice and important duty; but, also, to file and preserve the manuscripts sent to them, that a proper responsibility may be established, and the blame of errors, by which the sick may be seriously injured, fixed on those who

commit them. Without this skill and precaution, the lives of patients are in perpetual jeopardy.

I shall close, with a reference to the law of patents. The practice of granting patents for nostrums and panaceas, is discreditable to the age. It originated in a period, when medicine was far from its present state of improvement; and the science of legislation, correspondingly, imperfect. The day has arrived, when juster views should prevail. A chemist may, with propriety, receive a patent for the discovery of invention of a new compound, but not for its administration to the sick. He might, for example, prepare sulphate of morphia, from a cheaper article than opium, and by increasing the quantity, diminish the price to the consumers, and should be rewarded by a patent; but if he asked for an exclusive right, to administer some preparation of that medicine in certain diseases, it should not be given; because, such an administration could not benefit the public, the ultimate object of every exclusive grant. It will be acknowledged by the profession, that no article of the Materia Medica is beneficial, or even safe in every case of the disease, for which it is generally used. To be successful it must be adapted to the actual condition of the patient's system, and this can only be known to a competent observer. A patent remedy, is therefore, an absurdity, and too often a slow poison.

It may be said, however, that empyricism would palm its nostrums on the credulous, if they were not patented. This is true; but it is equally true, that patents are most authentic passports to the confidence of the people; which is well understood by those who prepare quack medicines, and constitutes the chief motive for applying to the patent office; although the alledged reason may be, to prevent counterfeits. Hence the law promotes imposition on the ignorant, whom, in fact, it ought to protect. It is, therefore, prejudicial to society, and should be repealed. To this end, our medical colleges and societies, ought to unite in memorializing the general government. A joint and earnest effort, could scarcely fail; and whether successful or unsuccessful, would reflect credit on the American Profession.

ART. II.—*Observations on the Pathology, and treatment of Cholera Infantum.* By JOHN WILTBANK, M. D., of Philadelphia.

When we take into consideration the character of this disease, its extensive prevalence, and the desolating ravages that annually attend its course in our large cities, we will be led duly to estimate the importance of a correct knowledge of its pathology, upon which we may found a mode of treatment, calculated to lessen its mortality, and to prevent its wide-spreading prevalence. Medical writers have paid but little attention to Cholera Infantum; and it is equally a subject of surprise and regret, that while upon every other malady that afflicts the human system, volume upon volume has been written and largely commented upon, the amount of our information upon this disease, is contained in fugitive essays, and slight notices, scattered through our journals; and in a few general observations to be met with in our regular treatises upon the practice of medicine. This is a stigma upon us, as American Physicians, that I sincerely hope will soon be removed, by the publication of a volume, devoted to this subject, by some one whose experience, observation and industry, may well qualify him to accomplish it. The appearance of such a work would be hailed as a public benefit, and its author rewarded by the meed of his own approbation, and by that of his Medical brethren and the public at large. Though I have not the presumption to suppose, that I can, to any degree, supply this deficiency, yet it gives me pleasure to add my mite of information to the general stock, in the anticipation that the disease will soon receive the attention it merits, from one more competent to do justice to the subject.

Cholera Infantum assumes a variety of forms, as it occurs in different individuals, or is modified by different causes. Diarrhœa, dysentery and cholera morbus, are all imitated by it, and according as it assumes the symptoms of one or other of these

diseases, it is likely to prove curable, or perhaps, inevitably fatal.

Symptoms. An attack of cholera infantum is sometimes preceded a few days, by nausea, loss of appetite, thirst and a slight diarrhœa. It usually, however, makes its attack more suddenly and with greater violence, by intense thirst, incessant vomiting, griping pains and frequent discharges of unnatural stools from the bowels. The general system soon sympathises and fever ensues. The fever appears to be of an irregular remitting type, with evident exacerbations, especially in the evening.—The pulse is at the onset of the disease weak, small and irritated, becoming more frequent and corded, but never strong or full. The skin is harsh and dry, or it may be cold and clammy and of unequal temperature, the head and abdomen being hot, while the extremities are cold. The stools are usually frequent and unnatural, and rarely large in quantity. Their appearance varies, being, in different cases, white, yellow, green, watery, frothy, mucous, bloody, or scybalous; and they may be extremely offensive or nearly inodorous. In some instances, they resemble the washings of putrid meat both in colour and smell. The appearance of bile, which may, in the early stages, have been quite evident, is now wholly removed. The little sufferer becomes restless and uneasy, and is never quiet in one posture—the bowels are spasmodically affected, and become so irritable, that the food passes through them unchanged, as in lyentery. The brain very early shows its participation in the diseased action—the eyes are either wild and fierce in their expression, or they may be remarkably placid and serene: the temples throb, and delirium and convulsions not unfrequently close the scene.

Such is a brief sketch of the symptoms that usually attend the acute stage of this affection. The disease becoming chronic, however, the symptoms become highly aggravated—The brain, which has hitherto exhibited the signs of irritation, is now much more seriously implicated.

Dr. Rush, in his excellent remarks upon this disease, observes, "that the head is so much affected, as in some in-

stances, to produce symptoms, not only of delirium, but of mania, insomuch that the children throw their heads backwards and forwards, and sometimes make attempts to scratch, and to bite their parents, nurses, and even themselves." "Such," he continues, "is the insensibility of the system in some instances of this disease, that flies have been seen to alight upon the eyes when open, without exciting a motion in the eyelids to remove them." Emaciation now rapidly ensues, and the expression of the countenance is entirely changed. The lips are swollen, the eyes dull, heavy, and sunk, and during sleep half open; the skin is shrivelled and drawn tight over the forehead: the abdomen becomes distended, painful to the touch, and hard, aphthæ appear about the mouth and fauces, and the legs and feet become œdematous. The purging is now incessant, the fæces being discharged without effort, forty or fifty times in the course of the day. So great is the irritability of the alimentary canal, that the most bland and digestible articles of diet are rejected, often before they reach the stomach, or pass through the bowels unaltered. In this state, our little patient will sometimes remain, with little variation, one or two months, and ultimately recover. When this is not the case, the child becomes comatose and insensible, spots of effused blood appear under the cuticle, and the symptoms of hydrocephalus hurry him to the grave.

In forming our *diagnosis* of this disease, we cannot well err. The season of the year in which it occurs—its extensive prevalence in our large cities, and its characteristic symptoms distinguish it from all other diseases. The only diseases to which it bears any affinity are diarrhœa, dysentery, and cholera morbus, and the treatment being so nearly similar in these cases, no nicety of discrimination is required.

The prognosis is by no means easy. Children will frequently languish under the most violent forms of the disease six or eight weeks, and ultimately recover, while others will suddenly, and contrary to our most reasonable expectations, fall victims to its violence in a few hours. We may, however, predict with some degree of certainty, a favourable termination, when the pulse becomes more full and slow, the skin soft and of a uniform tem-

perature, the discharges from the bowels less frequent and painful and, at the same time, more copious and of a dark bilious appearance, and the cerebral irritation subsides, as is evidenced by a more natural countenance, quiet sleep, and a return of sensibility. On the other hand, we may apprehend a fatal termination when the stools continue frequent and unnatural, the vomiting incessant, the pulse small, thready and irritated, and especially where the brain exhibits its participation in the diseased action by delirium, coma, insensibility, or convulsions. Dr. Dewees has pointed out "a symptom, which, as far as he has observed, has always proved fatal: it is a crystalline eruption upon the chest, of an immensity of watery vesicles, of a very minute size." "Another symptom which is much more common but not less fatal," says Dr. Dewees, "is the thrusting of the fingers into the back part of the mouth as if desirous of removing something from the throat: and he mentions a third, which is the escape of a living worm, in the chronic stage of this affection. If the worm comes away dead," says he, "there is nothing in the circumstance; but if alive, it is a deadly sign."

In attempting an elucidation of the *pathology* of cholera infantum, several very important facts demand a due consideration: And first I may remark, that the disease invariably occurs during the warm weather of our summer months—hence its vulgar title "the summer complaint." Commencing in the month of June or July, and when the thermometer is at its highest range, it continues with increasing violence until the appearance of frost. "A cool day," says Dr. Rush, "frequently abates its violence, and disposes it to a favourable termination." Secondly, this disease always attacks children during primary dentition. This fact is conceded on all hands, but it is not, in my opinion, invested with the importance it deserves. It has been remarked by all writers on this disease, and I may fearlessly appeal to the experience of all present for its confirmation, that previous to the commencement of the process of dentition, and after its completion, cholera infantum very seldom makes its attack. Thirdly, I would remark, that this af-

fection very generally prevails in our large cities, and usually in its most confined courts and alleys and in houses badly ventilated and filthy. In confirmation of this fact, I have only to quote the language of Dr. Eberle. "During a practice of twelve years in the country," he says, "I met with but two or three cases of this disease." And all admit, that the only sure remedy, in the management of cholera infantum, consists in a removal from the contaminated air of our crowded cities, into the pure and free air of the country. We have, then, three remote causes, whose united influence is absolutely necessary to the production of this malady, namely, high atmospheric temperature, the irritation produced by dentition, and the impure air of crowded cities. Any one or even two of these causes, without the aid of the third, are insufficient to the production of the disease: and although cases do occasionally occur, under circumstances favouring an opposite construction, yet they are too rare to form an exception to the general rule—or we might say with the ancient Romans, "exceptio probat regulam." A slight review of the effects of these prolific sources of disease will, perhaps, enable us to arrive at a satisfactory explanation of the pathology of this affection.

First, high atmospheric temperature excites the capillaries to increased secretion. This inordinate excitement produces a copious flow of perspiration, which is extremely liable, from exposure to cool or damp night air, to receive a sudden check. Heat, too, is known to stimulate the liver to increased excitement, and a superabundance of bile is poured into the intestines. "When the cutaneous and hepatic functions, while in a state of inordinate activity, are suddenly arrested by the influence of cold, the blood retreats from the surface to the internal vessels: the portal circulation becomes engorged, and the capillaries of the mucous membrane of the bowels strongly congested. This injected or engorged state of the capillaries of the mucous membrane of the alimentary canal gives rise, we may presume, to morbid irritability of this structure, and consequently the characteristic phenomena of the disease." Heat may also be said to render the whole system languid and irritable,

and in a situation, favourable to the operation of the exciting causes of disease.

Secondly, the effect of dentition, in almost every infant, is to a greater or less degree, irritation. This irritation may affect the brain, producing eruptions about the ears, delirium, or convulsions: or it may operate upon the stomach and bowels, causing, as we very frequently observe, vomiting and a diarrhœa. Should the bowels continue undisturbed during dentition, a proportionably severe irritation of the brain is to be apprehended, and we endeavour to fulfil the indications of nature by the interposition of purgatives, and thus divert action from the brain to the alimentary canal.

Of the operation of the impure air of crowded cities in the production of this disease, we must profess our ignorance. Of the fact, however, there can be no doubt. It most probably acts, by rendering the infantile system irritable and peculiarly predisposed to suffer from the irritation of dentition.

"We may therefore," in the language of an excellent writer upon this disease, "presume that in the irritable condition of the system, produced by a very warm and contaminated atmosphere, dentition causes more or less cerebral irritation, which being reflected on the stomach and bowels, renders them preternaturally irritable. If in this state of the alimentary canal, the cutaneous exhalants are over-excited and debilitated by high atmospheric temperature, the slightest reduction of temperature, a current of fresh air, or damp night air, will readily cause a sudden torpor of these emunctories. The blood will retreat from the surface to the internal organs, and give rise to engorgement of the vessels of the liver and mucous membrane of the bowels, by which the gastro-intestinal irritability will be still further increased, and the characteristic symptoms of the disease excited."

In infants, predisposed to this disease, an attack may be readily induced, by improper exposures to cool or damp night air, by light clothing, improper and indigestible food, worms.

Dissections plainly reveal the nature of this disease. The brain is often found, in cases of long standing, congested, and in

some instances, there are discovered effusions of water in the ventricles. In recent cases, however, the brain is but slightly affected. It is upon the liver and alimentary canal that the strongest marks of disease are apparent. The mucous membrane of the stomach and bowels is almost uniformly inflamed and congested. The liver is found engorged with blood and much increased in size. The gall bladder is usually filled with bile, which may be tenacious and of a dark green colour, or limpid and colourless.

Treatment. The leading indications in the treatment of this disease, appear to be: 1st. To destroy the influence of the remote causes; 2d. To allay the cerebral irritation; 3d. To calm the irritability of the stomach and bowels; 4th. To restore the action of the liver; and, 5th. To give tone to the stomach and bowels.

It is obvious, that so long as the patient is exposed to the combined influence of heat, dentition, and impure air, complete recovery cannot be reasonably expected. Our first object, then, should be to remove, or to palliate these causes. This may be most effectually accomplished, first, by removal to the country. Pure country air is, unquestionably, the most effectual remedy we possess for the relief of this disease, and will alone, in the majority of cases, effect a permanent cure. Dr. Rush says, that "out of the many hundred children whom I have sent into the country, in every stage of this disease, I have lost but three. But as it is not always in the power of our patients to command the advantages of a country residence, we should direct that the child be carried into the fresh air two or three times every day, either in the arms of its nurse, or in an open vehicle, or in a boat. Dr. Chapman speaks highly of the advantages to be derived from sailing, and states that he has known a great number of cases effectually cured by sailing backwards and forwards to Camden. The patient too, should be placed in the largest and best ventilated room in the house, and the windows and doors constantly kept open during the day. The damp night air, however, should be carefully excluded. Cleanliness should also be strictly observed, both in the patients person, and in his clothing, which should be regulated by the weather. Having

tated that the irritation of dentition is deeply concerned in the production of this disease, I need scarcely say that the gums should be frequently and carefully examined, and if inflamed or swelled, they should be freely lanced. These remedies will sometimes immediately arrest the progress of the disease, and render all further interference unnecessary. But should the disease become established, and the system sympathise in the morbid action, medicinal treatment will become absolutely necessary. To allay the cerebral irritation, without which it is impossible to calm the irritability of the stomach and bowels, is the first object to which our remedies should be directed. For this purpose, should fever supervene, the cheeks become flushed, the eyes fierce and the head hot, venesection will be necessary. Bleeding from the arm, however, is rarely demanded, and should never be carried to a great extent. Much more advantage may be obtained from the employment of leeches to the temples or nape of the neck or abdomen, and followed by the application of blisters behind the ears. These remedies will frequently allay the cerebral irritation, and render the disease much more mild and manageable in its course. Dr. Eberle lays great stress upon the employment of these remedies, and I am persuaded from my own experience with great reason.

It was formerly very much the practice to commence the treatment of this disease, with an emetic, but I am happy to find these remedies falling into general disuse in the management of the disease. Their employment was predicated upon an erroneous view of the pathology of this affection, and, what is still more to the purpose, they were found to be productive of effects, manifestly injurious. Where, however, the stomach is loaded with foul matter, and the efforts of nature are insufficient to its rejection, the vomiting may be promoted by the free exhibition of diluents. Our great object, however, should be to arrest the vomiting as speedily as possible, in order to allow the administration of other remedies. This object will often be successfully accomplished, by the application of sinapisms, spice plasters, emollient poultices, or fomentations of hops to the abdomen. Should these fail, however, the usual anti emetics may be administered, among

which may be mentioned lime water and milk, strong coffee, the essence or infusion of mint. Dr. Condie, in a very excellent paper upon this disease, read before this society, and afterwards published in the American Journal of Medical Sciences, very strongly recommends the spirits of turpentine, in doses of from ten to thirty drops, repeated three or four times in the day, and my own experience bears testimony to its utility. The remedy upon which Dr. Dewees mainly depends for the relief of the vomiting, is an enema of a gill of warm water, holding in solution three teaspoonsful of common salt. This I have never tried, but from the extensive experience of Dr. Dewees, would not hesitate in receiving it as a valuable remedy. Having succeeded by these means in tranquilising the stomach, our next object is to restore the healthy action of the liver. Of all the remedies we possess for this purpose, none can compare with calomel. The smallness of the dose requisite to produce its effects, its weight, and its want of taste, render it liable to be retained in the stomach, when every thing else would be rejected. These are not however the only advantages it possesses over all other cathartics. It exerts a specific and powerful action upon the liver, disgorges its vessels, promotes the secretion of bile, corrects the vitiated secretion of the intestinal capillaries, and thus attacks the disease in its very citadel. To obtain the full effects of calomel, it should be administered in minute doses, and repeated as often as the urgency of the symptoms may require: from one eighth to a quarter of a grain repeated every half hour or hour, has, in my hands, displayed extraordinary powers. Much as is to be obtained from the exhibition of calomel alone, its powers are increased by combination with ipecacuanha. The good effects of ipecacuanha in relieving intestinal disorder, in correcting vitiated secretions, and in tranquillizing any undue irritation or excitement, are well known. In dysentery, diarrhœa, and cholera morbus, it is often productive of the happiest effects, and in the disease under consideration it displays powers no less efficacious. I have generally been in the habit of using the following prescription. R. Hydr. Subm. grs. iij. ipecac.

pulv. grs. iv to vi.—Pulv. Gum Arab. grs. xv.—m. in chart. no. xij. divid. Of these, I usually direct one to be taken every half hour or hour, according to the violence of the symptoms. The use of this prescription should be steadily persevered in until the discharges from the bowels present the appearance of bile. As soon as this takes place, there is a manifest amelioration of the symptoms. The expression of the countenance becomes natural, the skin moist, and of an uniform temperature, the cerebral irritation subsides and the frequency and pain of the intestinal evacuations will be diminished. The following prescription has been highly extolled by many practitioners in this city, and I believe with just cause. R. Calomel gr. j. Ipecac. pulv. gr. j. a ij. Sacch. Saturni grs. xij. In chart. no xij. divid. Dose, one every hour or two according to the urgency of the symptoms. It is particularly efficacious in the dysenteric form. Should the disease, however, have made its attack suddenly, and with severity, exhibiting symptoms of cerebral concussion and there be reason to apprehend a loaded state of the bowels, it will be proper to commence, without loss of time, with large and repeated doses of calomel, with a view to its purgative operation. Let bile be once observed in the stools, and we have no fear for the result of the case: and until bilious discharges are procured, it matters not how mild the symptoms may appear, there is a secret enemy lurking in the system, which will sooner or later destroy its victim, at the very moment, perhaps, when we are fondly anticipating a complete recovery. The evacuations, from the bowels, then, should be frequently and carefully examined, and until the stools become decidedly billious, the use of calomel should be steadily persisted in. As soon as this change is perceived in the stools, a dose of olive or castor oil should be administered, and repeated as often as the state of the bowels requires it. The spiced syrup of rhubarb will often be found an useful remedy in this stage of the disease, and will be readily taken when, perhaps, almost every other medicine creates nausea. Having, by these means, procured the natural and healthy action of the chylopoietic viscera, it has been very much the custom with practitioners to

resort to opiates and astringents. These remedies, however, I would sedulously avoid, being persuaded that the mortality of this disease is principally to be ascribed to their improper employment. From the liability of the brain to take in diseased action, it is obvious, that these remedies cannot fail in the early stages to do harm, by determining action to the brain, and thus causing the very symptoms we are anxious to allay. The use of opium, I know, has the sanction of high names, but from my own experience I should say, that we cannot be too cautious in its administration. When the cerebral irritation, together with the arterial action, is entirely removed, and the disease runs into what Dr. Chapman denominates a gleet of the bowels, then indeed, opiates and astringents may be advantageously resorted to. But in the earlier stages of this affection, they are altogether inadmissible. Judging from experience, I should say, that at this period, anodyne or bland enemata are decidedly the best means we can employ to check the inordinate action of the intestines. Enemata of melted butter, or of starch, or flaxseed tea, with a few drops of laudanum, are frequently of great advantage. The warm bath has been highly recommended in every stage of this disease, and I am confident that I have derived great benefit from its employment. Its efficacy appears to depend upon its unloading the vessels of the abdominal viscera, determining to the skin and equalizing the circulation. Drs. Rush and Miller have proposed the use of the cold bath or sponging the surface with cold water, but I have never had occasion to test its virtues. In cases attended with undue determination of blood to the brain, I have frequently, and I think with advantage, applied cold to the head. At the same time, in order more effectually to divert the action from the brain, the application of sinapisms or blisters to the abdomen or extremities, often proves of signal benefit. To restore tone to the stomach in the sinking stages of the disease, mild tonics and stimulants will become necessary. For this purpose, the infusion of bark, columbo, gentian or chamomile with the addition of some aromatic, may be administered. Among the astringents may be mentioned as most proper in the latter stages

of this affection, decoctions or infusions of dewberry root, wild cherry tree bark, logwood, and in the lowest stages, kino and galls. The effects of these tonic and astringent remedies should be seduously watched, and if fever or cerebral affection supervene, they should be immediately withheld. Dr. Condie speaks highly of the effects of charcoal in this stage of the disease. "Under the employment of this remedy," says he, "the stools soon become more natural in appearance, and diminished in frequency, while the appetite for food, and the digestive powers of the stomach, are sensibly increased." I have never yet made trial of this remedy in cholera infantum, but have no doubt of its utility, when properly administered. It is said to be most advantageously prescribed in combination with rhubarb and ipecacuanha.

To relieve flatulence of the stomach and bowels, which is a very distressing symptom, recourse may be had to spirits of turpentine, soot tea, oil of Juniper, cinnamon or mint-water, small doses of volatile alkali, or a small quantity of sound sherry or Madeira wine, or of pure anise-seed cordial. After all, however, it is upon a properly regulated diet, that our chief dependence is to be placed, in the latter stages of this affection. Without unremitted attention to the diet of the patient, all our remedies will prove inefficacious, and our efforts at relief be in vain. If the child has not been weaned, it should be confined entirety to the breast of the mother or nurse. The generality of cases of this disease which come under our notice, however, occur after the child has been deprived of his maternal nutriment: this being the case, the most bland and digestible articles of food should be selected. Boiled milk alone, or with the addition of a little flour and loaf sugar, arrow root, tapioca, sago, and fresh whey constitute wholesome and salutary articles of diet. The addition of wine and spices contribute in rendering these several articles more palatable, and may prove useful by their astringent effects upon the bowels. Beef-tea and chicken-water are in some instances very agreeable, and may be allowed without injury. "We often see," says Dr. Rush, "an appetite suddenly awakened for articles of diet of a stimulating nature." He

states that he has seen many children recover, from being gratified in an inclination to eat salted fish, and the different kinds of salted meat. "In some instances," he says, "they discover an appetite for butter, and the richest gravies of roasted meats, and eat them with obvious relief to all their symptoms: and he cites the case of a child, who was perfectly restored from the lowest stage of the disease, by eating large quantities of rancid English cheese, and drinking two or three glasses of port wine every day. The child would in no instance eat bread with the cheese, nor taste the wine if it was mixed with water. This craving of the stomach appears to be an indication of nature, which should, in chronic cases, by no means be disregarded.

The means of prevention of an attack of cholera infantum consist, 1st, in the proper regulation of the diet. If the health and condition of the mother will admit of it, the child should be confined to the breast until the process of dentition is nearly completed. Having been weaned, however, the diet should be simple and nutritive. 2d. During dentition, the gums should be frequently and carefully examined, and if they should appear swollen or inflamed, they should be freely lanced. The child should be exposed every day to the fresh air, by taking it into the country or by crossing the river. Dr. Rush says, that out of the many hundred children, that he has sent to the country to avoid an attack of this disease, he has never known an instance in which it occurred. 4th. The clothing shonld be propeıly regulated and adapted to the vicissitudes of the weather. Many children, I am inclined to believe, have escaped an attack of cholera infantum by wearing flannel next to the skin. Dr. Chapman urges the use of a flannel roller applied around the hips and abdomen. 5th. Perhaps the most important preventive of this disease consists in the daily use of the cold bath. It promotes the healthy action of the skin, invigorates the stomach and bowels, produces cleanliness, and gives tone to the whole system.

ART. III.—*Observations on the Use and abuse of Emetics.* By DANIEL DRAKE, M. D.

For some time past, emetics have been gradually falling out of use in the United States, and I believe likewise in Europe. As they are *unpleasant* medicines, it would be desirable to dispense with them altogether; but this, I apprehend can not be done without injury to the resources of the profession. I am, even, inclined to believe, that many physicians have already gone too far in their neglect of these ancient and powerful remedies; and I propose to recall the attention of the readers of this Journal to their value.

I. OF THE CAUSES OF THEIR DISUSE.

These seem to be chiefly the following:

1st. The epidemic yellow fever of 1793, in which they were not found beneficial, and were generally replaced by cathartics, particularly the well known composition of calomel and jalap so strongly recommended by Dr. Rush; at that time, and for many years afterwards the most authoritative medical man in America.

2. The popular writings of Dr. Hamilton, in favor of cathartic medicines.

3. The recommendation by Mr. Abernethy, of the blue pill and rhubarb as means of correcting a morbid state of the digestive functions.

4. The gastro-enteritic doctrines of Broussais, with their prohibition of almost every remedial means, except abstinence, the lancet, and leeches.

5. The increasing tendency of the profession, to view the morbid secretions present in the alimentary canal, as the mere signs and effects of irritation in the solids, and of themselves quite harmless.

Now it is quite possible, that these and other causes may have brought emetics into *unmerited* disrepute; for, in the pro-

fession, as in social life, the multitude are prone to join in a clamor, however unfounded; and the majority of its members find it much easier to ascertain what is fashionable than what is just and proper. That they have thus combined in reference to the use of emetics, may, I think, be safely affirmed. As far as they have reasoned at all, it has been from the abuse of this class of remedies, or from theories that have imposed an *a priori* prohibition. But practical medicine is, essentially, an experimental science, and should place its chief reliance on trial and observation.

II. Of the Modus Operandi of Emetics.

Vomiting is a natural remedy, and presents us with one of the best marked examples of a *vis conservatrix et medicatrix*, to be found in the whole circle of sanito-morbid actions. The cases indeed are not a few, in which its occurrence is followed by a healthier state of the system, although not produced *secundum artem*. When thus excited, its effects are by no means limited to simple evacuation of the stomach; but extend to almost every organ and tissue of the body.

The operation comprises three successive stages, in each of which the vital properties and functions are differently and powerfully effected.

1. *The Stage of Nausea.* There can be no mistake in the observation, that the first effects of an emetic medicine are debilitating. The pulse becomes feeble, empty and frequent; the skin pale and cool; the muscles of animal life languid, and the ligaments relaxed, so that stiff and diseased joints may be moved to a greater extent, and with less pain than before; the organs of sense are blunted in their susceptibility; the faculty of observation impaired, and the intellectual functions crippled.

Thus it is clear, that the brain and heart, with the irattached systems of nerves, muscles, and blood vessels, are in a state of reduced excitement. It is held by some, however, that this condition is preceded and accompanied by inflammatory irritation of the mucous membrane of the stomach. But this is, certainly, a gratuitous opinion. That such a state of that membrane

may consist with this pathological condition of the organs, cannot be denied; but that inflammatory irritation of the stomach, is not necessary to the production of nausea, and does not in general occur, may be inferred from various facts and considerations.

1. Nausea may be produced by several causes which cannot be suspected of exciting nervo-vascular irritation; as for example, the copious use of tepid water, titillation of the fauces; offensive odours; swinging, whirling, carriage-riding, sailing, and other gyratory, or undulatory exercises; blood-letting, and concussion of the brain; to say nothing of weak infusion of ipecacuanha and other mild vegetable emetics which seem totally destitute of the properties necessary to the direct production of inflammatory action.

2. The stomach may be severely irritated and inflamed by various stimulants, such as cloves, cinnamon, or cayenne pepper, without exciting nausea.

3. Many cases of chronic gastritis, known under the name of dyspepsia, are unattended with nausea.

4. The time which follows the administration of an emetic medicine, before nausea and vomiting are induced, is, in general, too short to admit of the formation of an inflammatory irritation.

5. The symptoms attendant on this state, are not those of the nausea connected with marked gastritis.

6. The state of the stomach immediately on the subsidence of the nausea, is so sound and comfortable, as to discountenance the idea of a previous inflammatory orgasm.

Thus I am led to conclude, that nausea is a *peculiar* condition of the stomach, necessary to the natural function of vomiting; which may, or may not be associated with active irritation, according to the nature of the agent that produces it; and which, when occasioned by the ordinary therapeutic means, is rather asthenic than sthenic. In short, that the stomach is in harmony with the other organs of the body.

It may be said, however, that during nausea, there is a great secretion of mucus and saliva; but such increase, by no means

argues inflammation—perhaps the reverse—for there is increased perspiration, while no appearance indicates inflammatory congestion of the skin. In a fit of terror, moreover, there is augmented intestinal secretion; and in hysteria, from the same cause, the kidneys pour fourth copious streams of urine; but neither the bowels nor kidneys manifest signs of inflammation. In both cases, the increased secretion results from an affection of the nervous system, and the increased mucous, salivary, bilious and perspiratory secretion, from nausea, is manifestly of the same kind.

2. *Of the Vomiting.* The condition just described of the gastro-pharyngeal membrane, precedes and excites the convulsive movements of vomiting. Whenever it takes place, the brain is necessarily involved, as no other organ could combine the muscular apparatus of respiration, and the muscular tunic of the stomach, œsophagus and pharynx, in a simultaneous and co-operative movement. The effects of this extensive and violent muscular contraction are decisive. The abdominal and pelvic viscera, are strongly compressed and agitated; and the contents of the stomach, duodenum, gall-bladder and hepatic ducts are brought up. The lungs are alternately compressed and dilated to an unusual degree; the descending aorta is mechanically obstructed by the viscera, and a greater quantity of blood is determined into the arteries of the brain, which is thereby disturbed in its functions; the blood of the portal viscera and the convulsed muscles, is returned more rapidly upon the heart, whose movement becomes hurried and irregular; lastly, the spasms of the muscles of the tongue and throat agitate the larynx and glottis. Inverted muscular contraction occasionally takes place, quite down to the ileo-cæcal valve, but more commonly the increased action is progressive, and leads to purging. In the system of animal life, the contraction sometimes extends to the muscles of the extremities, especially the lower, in the form of cramps and spasms, and, in a few cases of hyper-emesis to the whole body, in the form of dangerous convulsions.

Such are the prominent circumstances of the second stage, which is, emphatically, a state of muscular excitement; to the production of which, however, an active irritation of the stomach is not necessary, as we see the same kind of convulsions, before death, from the loss of blood.

III. *Of the Sweating Stage.* Sooner or later after the commotions of the second stage subside, a state arises, which is characterized by sleep, a full, soft and slow pulse, general perspiration, and acuter and healthier sensibilities both of mind and body.

These three stages may always be recognized, when an active emetic is administered to a person in health or but little indisposed. It is easy to perceive in them many analogies with the three stages of a paroxysm of intermittent fever—that of depression or chill, of febrile excitement, and of secretion.

Vomiting, from a therapeutic agent, may in reality be made a disease, as pervading and extensive as intermitting fever; but the second stage affects the muscles, chiefly, instead of the blood vessels, and the fit is not repeated unless the remote cause be reapplied. The first effect of this remote cause is the production in the gastric mucous membrane, of an action, *sui generis*, not necessarily accompanied with inflammatory orgasm, which springs the muscular tunic of the organ and the muscles of respiration, into strong contraction, and by dependence of function or sympathy, that is, anatomically or physiologically, alters the vital properties and functions of the whole body, in many cases obviously improving the condition of both.

If the medicine be administered in such doses as to produce nausea, only the powers of the heart and brain are more deeply depressed than if vomiting be excited, and the subsequent state of the vital properties is much less active. Nausea is, indeed, a sedative, but vomiting has many claims to be regarded as a stimulant, and, therefore, an active and speedy emetic debilitates less than protracted nausea, purging or venesection.

To the absorbent system, both nausea and vomiting are stimulants, for collections of pus and serum begin to be absorbed during the former, and often rapidly disappear under and after the cessation of the latter.

Thus an emetic, beyond almost every other therapeutic agent, affects the whole system; acting as a sedative, a stimulus, and an evacuant—renovating the vital properties—disturbing, but ultimately equalizing, the currents of the circulation—promoting absorption, and restoring the suspended secretions.

III. Of the application of Emetics to the cure of Diseases.

It would be a great mistake to suppose, that the good effects of emetics are limited to original diseases of the stomach, or depend entirely on the gastric evacuation which they produce; and equally erroneous to infer, that every malady in which they do good, is seated in that organ. Every primary gastric disease, does not call for vomiting, and many disorders which do not affect the stomach, are mitigated or removed by that operation. A disease is cured, when the morbid function in which it consists is made to cease, either by reducing the powers of the organ, by introducing a new action, or by transferring the scene of operations to another part. Whatever can accomplish either of these, is remedial. Emetics to some extent, are capable of effecting the whole. In what cases they will succeed or fail, can only be determined by experiment. I shall proceed to enumerate the principal maladies, for which I have found them beneficial.

In the Anorexia with furred tongue and bitter taste, headache, back ache, and muscular debility, so often present in spring and summer, and known among the people under the name of "bilious habit," "a bilious attack," and "foul stomach" emetics generally give immediate relief.

When Cholera is impending, an emetico-cathartic, is frequently attended with the happiest effects. The artificial disease is made, as it were, to take the place of the other, and when it subsides, the patient is in general, speedily restored, especially if the operation be succeeded by an opiate and sudorific.

In Diarrhœa, emetics of ipecacuanha are often followed by signal mitigation of the increased peristaltic action; by determination to the cutaneous surface, and by consequent diminu-

tion of mucous secretion. They frequently restore suspended hepatic secretion, a state which produces diarrhœa, and thus effect a cure of the latter.

In Dysentery. Emetics and Emetico-Cathartics, are among the most efficient remedies in this malady; though its modern name —*colitis*—may be sufficient, with a part of the profession, to lead to their prohibition. When the accompanying fever is acute, venesection should be premised; and when the tormina are excruciating, some preparation of opium, should precede or accompany their exhibition.

In chronic Hepatitis, emetics are often followed by the happiest effects. The liver is emulged, both its secretory and transmitting functions improved, the sympathetic affections of the stomach subdued, and the deep and distressing nervous irritation, attendant on the visceral derangements, more signally allayed, than by any other means that I have ever employed.

Jaundice and Gall Stones. When Jaundice is attended with hepatic inflammation, or passing gall stones have excited that disease in the duct, blood letting is requisite; but this step being taken, or judged unnecessary, emetics are of great benefit; being frequently followed by a free and regular discharge of the contents of the gland and cyst, and an immediate abatement of all the symptoms. To be effective, they should be of the more energetic kind, and the vomiting should be violent and protracted.

Among the varieties of Colic, cases are often met with, to which they are well adapted; as, for example, such as are excited by indigestible substances.

Professor Hosack has strongly recommended them in Constipation. When that symptom is not attended with developed inflammation, their union with cathartics renders the latter far more effective.

Enlargements of the Spleen, from intermitting fever, require an occasional emetic.

Dyspepsia. The practice of administering emetics in this disease, has the sanction of an ancient and varied experience. At the present time, fashion regards it as simple chronic gas-

tritis. I am convinced, however, that the majority of cases are either unattended with inflammation, or, that a slight degree of gastritis does not contra-indicate vomiting—probably both. Dyspeptics of a slnggish and phlegmatic habit, are most benefited by emetics, and, among this class, those who lead sedentary lives, will derive the greatest advantage. The sensibilities and digestive powers of the stomach, the functions of the skin, and the operations of the nervous system of animal life, are signally improved by an active emetic. In many cases, however, it is necessary to premise venesection or epigastric cupping.

Inflammations, from cold of the Pharynx and Tonsils, (*Cynanche pharyngea et tonsillaris*) are treated with great success by emetics. A single blood letting, followed by active vomiting, will, in most cases, discuss the inflammation, and save the patient from a tedious suppuration—a result, that might, in fact, be anticipated, from the intimate sympathy, so observable between the pharynx and stomach, and the striking effects which emetics excite in the former.

In diseases of the Larynx, Trachea, and Lungs. The beneficial effects of emetic medicines in most of these maladies, are generally acknowledged by the profession.

In Pertussis they are known to be among the most efficacious palliatives.

In Croup (acute Laryngitis of children) their reputation is established. Administered in the forming stage, they frequently arrest the disease. When it is fully established and violent, they require blood letting and the tepid bath to secure a free operation.

In Catarrh, or irritation of the entire naro-pulmonary mucous membrane, whether epidemic or sporadic, their effects are eminently serviceable; especially if preceded, in violent cases, by blood letting, and followed by diaphoretics, and copious dilution.

In chronic Laryngitis of adults, they are useful palliatives; in the acute, they are curative.

In Bronchitis, both acute and chronic, they produce excellent effects; promoting copious secretion and contributing to a free expectoration of mucus.

In Pneumonitis and Pleuritis, they are valuable, the lancet of course being first adequately employed.

In the whole of these affections, tartarized antimony, in the form of pills, in large doses, with or without opium, produces effects that go far to justify the exalted eulogies of Thommasini and other Italian physicians.

In Tubercular Phthisis an occasional emetic is productive of mitigation; of course nothing more should be expected.

In Hæmoptysis I have excited nausea with much advantage; and there are respectable authorities for vomiting, to which, however, I have not been accustomed to resort.

In Asthma, not arising from organic læsions, they often prove beneficial in an eminent degree, especially when the dyspnœa is occasioned by a bilious or acid state of the stomach.

Various affections of the face and head require the use of emetics.

Ophthalmias, the offspring of malaria, or of dyspepsia, are frequently mitigated by them.

In Amaurosis they are useful, provided the brain be not engorged.

Ordinary sick head-aches are greatly relieved by them, if taken at the commencement of the fit, and the feet be bathed in warm water.

In some varieties of Neuralgia, they have been found beneficial; and often give immediate relief in that pseudo-neuralgic affection, the "jaw-ache," from decayed teeth.

In cases of Arachnitis (*Hydro-cephalus Infantum*) attended with but little fever, and arising from gastro-intestinal irritation, they are valuable remedies.

In Apoplexy, connected with gastric repletion, they may follow blood-letting with great advantage. When the patient is sanguine and plethoric, and the original irritation is in the brain, they are contra-indicated.

They are well adapted to many cases of Chorea, a disease in which the appetite is often both excessive and perverted.

In at least two varieties of Epilepsy, they are valuable.—1st. That from indigestion, occurring within the true dyspeptic pe-

riod, that is between the 18th and 36th year; and, secondly, that which arises from intemperance in its earlier stages, and immediately follows a debauch.

When Hysteria, as often happens, is occasioned by gastro-intestinal irritation, they frequently giveim mediate relief, after the usual anti-spasmodic medicines have been administered in large doses without effect.

In Mania and Monomania, they are often beneficial; but the selection of cases for their employment requires the exercise of a discriminating judgment.

They are proper in a greater number and variety of cases of Hypochondriasm, effecting the expulsion of large quantities of bile or acid, and dissipating in a single hour, the deepest intellectual gloom.

In Mania a Potu, they are of unquestionable utility, but if I mistake not, the profession, at large, have not realized all that has been recorded in their favor by Dr. Klapp. I certainly have not myself, and when the constitution is shattered, they may do harm.

In many cases of Rheumatism, their efficacy is very great. I have repeatedly seen a powerful vomit with or without previous blood-letting, put a stop to a rheumatic attack, which, to all appearance, would otherwise have been protracted and severe. Many persons are subject to what they call pain in the bones—an affection of the periosteum. I have seen it very generally removed by an emetic.

Of their value in Dropsies, no one who gives them a full trial will entertain a doubt. Indeed, no other therapeutic agent more powerfully excites the absorbent system. When a decided phlogistic diathesis exists, they should be preceded by blood-letting. When the effusion is the consequence of organic disease, obstructing and deranging the venous circulation, their good effects are of course more limited. It is to persons of the lymphatic temperament that they are most beneficial.

In Chlorosis they are admirable remedies, preparing the system of the patient for the Bark and Chalybeates, and enabling those tonics to exert a power which they could not otherwise

manifest. To the cure of Leucorrhœa they are nearly as applicable; except when vomiting is contraindicated by prolapsus uteri.

In Puerperal fever, I have repeatedly witnessed their salutary effects. In this, as in many other maladies, they are more beneficial when united with cathartics, than when given alone.

Most of the Eruptive fevers are moderated by emetics. Erysipelas is sometimes cut short by their active operation.

Small Pox and and Varioloid affections are mitigated by them, if administered during the eruptive fever.

In Measles they are important remedies. When the lungs are engorged, and the cutaneous efflorescence is tardy in appearing, an emetic and the tepid bath, with or without blood-letting, according to the degree of arterial excitement, will seldom fail to establish it completely; while to meet the sinister symptoms, which sometimes follow the recess of the eruption, they are of equal value.

They are perhaps more efficacious still in the different varieties of Scarlatina, particularly when attended with dangerous ulceration of the throat.

In the treatment of Intermittent fever, they possess great efficacy. Given before the chill, they not unfrequently ward it off, and shorten the paroxysm. Administered in the hot stage, in connexion with refrigerants and cathartics, they moderate its violence, and prepare the system for an early and salutary resort to the Bark or its preparations. In protracted cases, an emetic, in connexion with an opiate, at the access of the paroxysm, will sometimes cure the disease. In congestive intermittents, they are useful; but should be administered in connection with opium sinapisms, the warm salt bath, and other cutaneous stimulants.

In the higher grades of Remittent autumnal fever, Emetics are contraindicated, at least until copious blood-letting has been premised. When bile was absurdly regarded as the cause of this fever, Emetics were held to be essential to its cure: Now that it has become fashionable to consider it as a gastro-enteritis, and the bile as a *harmless* product of duodeno-hepatic irrita-

tion in the solids, Emetics are on theory pronounced to be pernicious. Were I to rely on the results of my own observation, I should say, that they are sometimes pernicious, and sometimes unnecessary, but often beneficial The best, I think, is tartarized antimony, which should be given, so as to excite protracted nausea, 2; in connexion with refrigerants and cathartics, as the nitr. pot. sulph. magnes. and Supertart. pot. 3 in the exascerbation.

In Typhus and typhoid fevers, I have repeatedly seen Emetics do much good—diminishing the acrid heat and parched dryness of the skin, increasing the secretions of the mucous membranes, lessening the frequency of the pulse and rousing the patient from coma.

In the Epidemic denominated Pneumonia Typhodes—a pulmonary inflammation associated with a typhus diathesis of the general system—emetic medicines were, on the whole, the most efficacious that I saw employed. In large doses, so administered as not to operate, they did much good, while full vomiting seldom failed to produce a decided mitigation of the cough and dyspnœa, and to improve the condition of the pulse. When the lancet was of doubtful propriety, emetics generally answered every reasonable expectation.

These are the principal diseases in which I have employed Emetics with advantage; but there are many others in which a preliminary, or an occasional vomit, is of decided benefit. It is not difficult to comprehend how this happens.

When the stomach is oppressed by morbid secretions, either mucous, acid or bilious; or, its vital properties are obtunded or perverted, no medicine will produce its characteristic effects.—In such a condition of the organ, sudorifics, narcotics, tonics, expectorants, diuretics, emmenagogues, and even cathartics, are seldom followed by decided advantage; but, preceded by a vomit, which completely empties the stomach and augments its excitability, their action is energetic. It is like deterging and inviting blood into the skin, before the application of a blister. Now every physician is aware, that in many diseases, the stomach, which is to receive most of our medicines and transmit

their impressions to distant organs, is exceedingly apt to become the seat of morbid accumulations. These matters, it is held by many practitioners, may be effectually removed by cathartics, to which, on several accounts, they give the preference. I have satisfied myself, however, that a cathartic may operate copiously, and yet leave the stomach clogged with recremental matters or morbid secretions; and, I believe, moreover, that vomits augment the sensibility of the organ, more than purgatives, and, therefore, on both accounts, are in numerous cases a better preparatory means.

The shock which Emetics impart to the whole system, is another reason why, as an occasional remedy, they prove beneficial in various diseases, (to the perfect cure of which they are inadequate,) although such complaints may not present any symptom of gastric derangement. I am aware, that this shock is regarded by certain physicians with dismay; but their apprehensions are the offspring of theory rather than practice. It remains to be shown, that diseases in general, consist in inflammatory irritation, especially seated in the gastro-intestinal mucous membrane; or that, if possessing this character and locality, they can only be cured by abstinence and sanguineous abstractions. Of the value of these therapeutic means, I entertain an exalted estimate; but cannot concede to them the right to exclude other remedial measures. If inflammatory irritations may arise, when the sum total of the vital powers, is below the standard of health, it follows, that they may continue under a simply reducing method of treatment, however far it may be carried. They who rely on mere reduction, will have many tedious and fatal cases, which might have been averted or cured, by a well timed resort to such things as agitate the system, modify its vital properties, and introduce new actions. As a general proposition, when morbid actions have been reduced to a certain degree, they may be superseded by something which makes a strong impression. Such an impression is not of necessity, incompatible with the well being of the constitution. In fact, our organs, like plants and animals, flourish under agitation, and become healthier and firmer in proportion as they are,

within certain limits, subjected to hard treatment. I have seen nothing to convince me, that energetic and agitating methods of treatment, impair the constitution; on the contrary, I believe that bloodletting, emetics, cathartics, narcotics, the cold effusion, and tonics, employed in such manner as to carry rapid and decisive changes into the various organs, frequently preserve them from the wasting influence of chronic maladies; and by renovating the vital properties, give renewed and healthy activity to the different functions. Thus it is, I think, that we may comprehend, how emetics are safe and salutary in a large number of diseases, their application to which may in reality be regarded as empyrical.

IV. Of the Precautions necessary in the Use of Emetics.

Although vomiting is a natural function, it cannot be excited under all circumstances, to any extent, or by every kind of nauseant, with impunity. Hence emetics are perpetually misused; and often do harm instead of good, to the great injury of their character.

A plethoric state of the blood vessels, with powerful action of the heart, contraindicates their use; and when this condition of the general system, is connected with inflammation of any of the important organs or tissues, they may be extremely injurious. Thus in high grades of autumnal fever, and in acute gastritis and arachnitis, they are decidedly improper. The predisposing remedy, in these and other specimens of intense phlogistic action, is copious bloodletting; immediately after which, if vomiting should be indicated, it may be brought on with facility, safety, and good effect—especially if tartarized antimony be selected and so administered as to excite protracted nausea. In most of these cases, it is advisable to combine the medicine, with a cathartic, such as calomel and jalap, or the sulphate of soda or magnesia; when the effect is invariably more salutary. Indeed, a saline emetico-cathartic, after a full bleeding, is one of the most powerful means, which the profession can wield against an active inflammatory diathesis; and often accomplishes that, which mere bloodletting could not effect, on ac-

count of the tendency of that remedy, when often and quickly repeated, to generate a state of dangerous nervous irritation.

The union of cathartic with emetic medicines, has another advantage. It tends to prevent cramp of the stomach. Hence, when that morbid state arises without purging, a cathartic injection is one of the most prompt and successful remedies in our power. But more of this presently.

Another auxiliary and corrective measure, in reference to Emetics, is the administration, after the vomiting has ceased or in its latter stages, of a dose of opium or one of its preparations, combined with a diaphoretic. By this practice the irritability of the system, accumulated and rendered morbid by the emetic, is subdued; the functions are tranquillized; the pulse rendered full and soft, and perspiration promoted. The patient enjoys refreshing sleep, and, generally, awakes with improved feelings and better health.

It is an abuse of Emetics to administer them very frequently. They first render the stomach irritable, and then inflame it; especially if venesection be not premised, and cathartics and narcotics interposed.

Certain incurable organic maladies of the viscera, contraindicate the use of Emetics. When the lungs are cavernous, and considerable branches of the pulmonary artery are liable to erosion or ulceration, they may bring on hæmoptysis. When the ventricles of the heart are affected with passive dilatation, or the great arteries of the chest are aneurismal, they are dangerous. When the stomach is the seat of ulceration, or the pylorus is scirrhus, they should be withheld.

Persons of a phlegmatic temperament, are sometimes injured by Emetics, particularly the antimonial. They prostrate the muscular power, both in the stomach and the apparatus of respiration, and excite deep and distressing nausea, with paralysis, rather than convulsion, in the muscles concerned in vomiting. When persons of this temperament take Emetics, they frequently require stimulants, such as a strong bitter infusion, weak spirit and water, powdered mustard thrown into hot water, or a moderate draft of paregoric, in the same vehicle.

A nervous temperament, predisposing to spasm, should enjoin caution in the use of Emetics. They are apt to excite cramp of the stomach in persons of this habit. The best preventive, is the administration of a large dose of opium, several hours before the emetic; and the union of ipecacuanha and finely powdered valerian root, with the tartarized antimony.

Congestive fevers are frequently much relieved by Emetics; but, if the prostration be very great, they are dangerous remedies, unless internal, and, more particularly, free external stimulation, be employed at the same time.

Emetics are contraindicated by the exhaustion of the vital powers attendant on the latter stages of most diseases, whether acute or chronic; and might sometimes destroy life, by their debilitating operation.

When the feet, or the surface of the body, is cold, and the perspiration suppressed by exposure to a damp atmosphere, Emetics should not be given. Nor should the patient at any time take an emetic in a cold and damp room.

In old age Emetics operate less kindly, than in childhood, and hence they are better adapted to the diseases of early, than latter life.

The best periods of the day for taking an Emetic, are, the morning, before the patient has risen, and the evening, in time for the operation to be over, and some cathartic effect to take place, before going to rest for the night.

Emetics produce drowsiness, and it is a common opinion of the people, that the patient should not be allowed to sleep, till the operation is completed. The only harm that sleeping can do, is to limit or suspend the operation of the medicine, and determine its action on the bowels. A state of wakefulness and an erect position promote the operation of the medicine, and when this is tardy, they should both be enjoined.

Hyper-emesis or excessive vomiting from an emetic, is a true cholera; and may even prove fatal. It is proper, therefore, that those who are in the habit of administeriug this class of medicines, should be familiar with the prophylactic and curative means of meeting such a case. I have elsewhere, (see the

number for September, 1827, vol 1, of this Journal,) spoken at large on this subject, but will conclude the present article with a summary of what is requisite in such cases.

Cramp of the stomach, from the action of emetic medicines, presents two stages, which require different methods of treatment. The first is characterized by spasm, the second by inflammation. The former is to be met by pediluvium, and dry epigastric cupping, the application, to the pit of the stomach, of a strong sinapism, a flannel dipped in hot spirit of turpentine, or a towel, wrung out of hot water, rolled into a ball, and enveloped in a dry wrapper. The most efficacious internal remedies, are hot spirit and water, and large doses of laudanum; if the bowels have not been acted on, a purgative injection should be promptly administered; otherwise, an injection of starch with laudanum, will be proper. Should the symptoms continue for several hours, the second or inflammatory stage will be developed, and the treatment should be that for acute gastritis. A perseverance in the stimulating course, would be fatal. The patient should be bled, and cupped or leeched, in the epigastric region;—afterwards, (the symptoms continuing,) blistered. Mild mucilaginous drinks should be given sparingly, and resort at length be had to a pill of calomel and opium, with a repetition of the blood-letting.

As the powers of the system are extremely depressed in this affection, the patient should be kept in a recumbent posture, with his abdominal muscles relaxed, and encouraged to sleep.

Cincinnati, April 1, 1832.

ART. IV.—*On the Causes of Dyspepsia and other Diseases to which Students are liable.*—BY JAMES C. FINLEY, M. D.

1. The most efficient cause of dyspepsia is *Want of exercise.* Man is intended to be an active, as well as a rational being, and disease is the penalty annexed by nature, to the neglect of the active duties of life.

A very cursory investigation of the effects of exercise will shew that inactivity is not only a very powerful direct cause of disease, but that by co-operating with the other causes of disease to which students are exposed, it has a more general and pernicious influence than any other, perhaps than all the rest.

Exercise by facilitating the motion of the blood in the veins, throws an increased quantity upon the heart; this organ thus stimulated to greater exertion circulates the blood more rapidly through the lungs, and consequently exposes it more frequently to the action of the air, and secures the beneficial changes which result from that contact; this increased action at the same time, impels the blood with more energy into the capillary vessels, where the various functions of secretion, exhalation, nutrition, and the generation of animal heat are carried on. Thus the circulation is promoted, and the proper balance between the different parts of the vascular system is preserved, the complexion is made to exhibit the roseate hue of health, animal temperature is regulated, sensibility is imparted to the nerves, energy to the muscles, and activity to that whole system of waste and supply, by which the healthful condition of the body is preserved.

Directly the reverse are the consequences of inactivity. The blood accumulates in the veins producing visceral obstructions and depression of spirits; it is imperfectly oxygenized and consequently the muscles are languid and debilitated, and the functions of the different organs imperfectly performed; the animal heat is diminished, and the system rendered sensible to atmospheric changes; and lastly there is a liability to those

forms of disase which arise from obstructed perspiration. In addition to these circumstances, it is well known that the body, when debarred from its regular exercise, becomes irritable, and to use a familiar expression, "nervous," with a desire for unnatural stimuli, and that this condition extends its influence to the mind, rendering it peevish, fretful, impulsive, and unfit for close application to study.

It will thus be seen that, from the constitution of man, exercise is necessary to supply the defects of his organization, and, if we may use the expression, is an essential part of the animal economy; the negative influence of sedentary habits, therefore, in predisposing the body to disease, must be very considerable. This influence, however, is generally so gradual, that it is seldom fully recognized, and is not unfrequently entirely lost sight of, in the operation of causes of disease which derive all their deleterious influence from the derangement and debility consequent upon indolence; and we shall have an opportunity of remarking in the enumeration of the other causes of disease, to which students are exposed, that with a constitution strengthened by laborious exercise and habitual exposure, they would have little to apprehend from disease.

2. *Intemperance in eating.* In order to the preservation of health, there should be some ratio between the amount of food and the waste of the body. The appetite, if its dictates were attended to, would generally regulate this; but the gratification of the taste so generally leads to a disregard of the sense of satiety, and an artificial appetite is so universally provoked by the use of stimulants, that students of the most sedentary habits, very frequently devour as great a quantity of food, as the man whose body is exhausted by the most violent and long continued labor. The stomach is thus exposed to a double source of injury, viz. it is filled with food disproportionate to the wants of the system, and it is stimulated to the performance of the task of digesting this, by condiments which impart temporary power, at the expense of future debility. Dyspepsia, sooner or later, is the inevitable consequence, and its symptoms are not the less distressing, because they are accompanied

with the deceptive appearance of general health, or even of an excess of nutrition.

3. *The use of unnatural stimulants.* We have already remarked that one of the tendencies of sedentary habits, was to produce a restlessness—an irritability of the body, and a consequent resort to artificial stimulants for its relief. Of these, the most common, and, with the exception of ardent spritis, the most pernicions, is tobacco in the various forms of smoking, chewing, and snuffiing. The evils of these noxious and vulgar habits are incalculable, and the more injurious because they produce their effects so insidiously, that the cause is seldom suspected until the habit has become inveterate. Men of active habits may often indulge in these practices with impunity, but to students they are always injurious, impairing the power of digestion, and increasing the irritability both of the body and of the mind.

In conformity with custom, I have called this weed a stimulant. It is however the reverse of a stimulant in every respect, directly impairing the powers of life, and not doing its work indirectly, as ardent spirits do.

4. *Studying in unnatural positions*—with the body much bent —with the feet elevated above the head—writing with the chest or stomach resting upon the edge of the table, &c.; by which the healthful play of the vital organs is obstructed, and a foundation laid for general or local diseases. Much of the disposition to these uncomfortable positions, arises from the want of that vigorous tone of the muscular system which can only be obtained by active exercise.

5. *Studying in cold or damp rooms or in wet clothes.* The inactivity of study must necessarily favour the operation of this cause of disease. The evil will be further increased by the diminished power of generating animal heat, and of resisting the impressions of morbid agents, which want of exercise produces. This latter circumstance has also a more direct influ ence in aggravating the effects of cold. We have already remarked that one of the tendencies of want of exercise was, to

permit the blood to recede from the surface of the body, and to accumulate in the large venous trunks. Now this is precisely the influence of cold, and consequently, the two causes combining must produce a proportionately greater effect.

6. *The habit of studying in heated apartments.* The languor of the circulation consequent upon sedentary habits, renders the body peculiarly sensitive to cold, and hence the disposition to keep up the animal heat by an undue degree of external warmth. The immediate consequences of this are, that the skin is either too much relaxed, or that fever is produced, and the surface becomes dry and harsh, and the body restless and uncomfortable; languor and feebleness are produced, and a liability to the evils produced by atmospheric vicissitudes.

7. *Late and irregular hours of retiring to rest, and consequently of rising.* The healthful tendency of early rising, and the injurious tendency of protracting study to a late hour are proverbial. One hour devoted to sleep before midnight is said to be worth two after it. In explanation of this fact, besides the reasons generally assigned, we beg leave to offer the following physiological facts. Close application to study does not indispose the body for labor, although bodily fatigue is a serious obstacle to intellectual exertion, and renders a double effort of the attention necessary to its accomplishment. Again, while labor disposes the body to repose, mental exertion induces wakefulness, and there are few intense students whose active minds have not often caused them to pass sleepless nights, at a time when their exhausted powers imperiously demanded repose.

Nature therefore obviously indicates the morning as the period of study. The labors of the day are thus converted into healthful amusement, and in their turn serve to procure a sound and refreshing sleep at night. By inverting the order, the student sits down to study with his mind incapacitated for the occupation; mental exertion is doubly exhausting: the labors of the day are protracted, the tendency to repose is interrupted; his slumbers are disturbed, and consequently the suceeeding day is one of languor and exhaustion. In confir-

mation of this view, I have never known an individual engaged in business of an active nature, who had accustomed himself to late hours of study, that could be induced to make a great mental effort, except on the spur of great and immediate excitement.

It may further be remarked, that the hours of late students are almost of necessity irregular. Now sleep, like almost every thing else appertaining to the animal economy, is very much under the influence of habit; and consequently, where the hours of repose are irregular, much inconvenience will frequently be the consequence.

The excuse so frequently urged by some, that night is the most favorable period for study, proves nothing but the strength of a pernicious habit.

8. *The abuse or neglect of suitable remedies.* Many students suffer from the injudicious use of medicine so powerful as to impair the healthful tone of the stomach, at a time when fasting or on abstemious diet is rather called for. The temporary relief produced by these means encourages a repitition of excesses and a recurrence to the remedy, until by their combined influence dyspepsia is produced. On the other hand the neglect to use remedies for removing certain conditions of the system to which sedentary men are predisposed very frequently lays the foundation for dyspepsia or more serious diseases.

REVIEWS

AND BIBLIOGRAPHICAL NOTICES.

ART. V. *Lectures on Physiology, Zoology, and the Natural History of Man*, delivered at the Royal College of Surgeons—By W. LAWRENCE, F. R. S., Professor of Anatomy and Surgery to the College, Assistant Surgeon to St. Bartholomew's Hospital, Surgeon to Bridewell and Bethlehem Hospitals, and to the London Infirmary for Diseases of the Eye.

We gave in our last number some account of Lawrence's Lectures, confining our remarks to that part of the work which treated of the *Specific Characters of man*. In the present number, we design to continue our review, and present some of the author's views on the *varieties of the human species*.

Are all mankind of one species? This question has been connected with so many associations of religion, sympathy, and self interest, that its investigation is beset with difficulties calculated to mislead the mind, and obstruct the course of free investigation. Records, which are guarded with sleepless jealousy by the popular religion of the whole civilized world, appear very clearly to deduce the different families of mankind from a common parent. Philanthropy, in view of the fearful ravages which war and oppression have produced, have endeavored to enlist the sympathies of a common nature in opposition to the destructive influences of self interest and ambition. Scholastic Philosophy, with her ponderous weapons of unintelligible logic, and *a priori* reasoning, has not been wanting in her efforts; nor, if the object of reasoning be conviction without illumination, have her labors been in vain.

The period, however, has long since passed by when truth could successfully appeal to the tribunal of bigotry or scholastic

learning. Her proper weapons are investigation and observation, and with these, she should be always ready to enter the lists without a fear of the consequences.

The differences, in the physiological structure—in the form, size, colour, &c. of the different races of mankind, and in their moral, social and intellectual condition, are so striking as very obviously to lead superficial observes to the belief of a difference in the species; but if the points of difference are great, those of resemblance are not less obvious, and are more fundamental. Different persons, consequently, from diversity of views or other motives, have taken opposite sides of the question and defended their opinions with great plausibility. Under these circumstances, there is but one common and satisfactory ground upon which all enquirers can meet, and that is the ground of natural history and physiology. We can hope to ascertain and establish the true state of the case, only by comparing the differences among the different races of mankind, with those which we observe among animals; by ascertaining the influence of natural and moral causes upon both, and applying to the information thus derived from observation and analogy, the aid of physiology and comparative anatomy. If in the pursuit of this method of investigation, we arrive at conclusions which will confirm the sanctions of religion, and give full play to the benevolent and sympathetic principles of our nature, the friends of truth will have double cause of congratulation in the result of their labors.

Before entering upon this investigation, it is necessary to determine the precise import of the terms *species* and *variety*.

It may be stated in the abstract, that all animals which differ in such points only as might arise in the natural course of degeneration, that is, from recognised causes of variation, belong to the same species; while those differences which cannot be accounted for on this supposition, must lead us to class the animals which exhibit them in different species. But the chief difficulty is, to point out the characters by which, in actual practice, mere varieties may be distinguished from genuine specific differences.

The different species of animals are distinguished by fixed and definite external forms which, in general, are perpetuated

with little or no variation from generation to generation. These characters, however, may be modified by a variety of circumstances. Climate produces some slight influence, and variations in the quantity and quality of the food still more. But as animals, when left to themselves, generally select as their place of abode, the situation and climate adapted to their organization and wants, the differences produced by these circumstances among wild animals are, for the most part, very slight.

Domestication produces the greatest changes, and the extent of its influence depends upon the more or less perfect subjection of the animal to the will or caprice of his master, and especially when man regulates their sexual intercourse, by selecting individuals to breed from, the most astonishing changes in form and qualities have been produced. The herbiverous domestic animals, the companions of man in almost every climate, exhibit changes which are indeed very striking but chiefly superficial. The greatest influence, however, has been produced upon the dog, in which such changes have been produced that the different varieties vary more widely than any wild species of the same genera. Still, however, in all these cases, the connection of the bones remains the same, and the form of the teeth is never altered.

The criterion of breeding was at one time, through the influence of Hunter and Buffon, very generally received as an evidence of the identity of species. The aversion to an union between the different species of animals, and the general sterility of hybrid animals led these naturalists to adopt the principle that when a union resulted in a prolific offspring the differences were the result of adventitious circumstances. The admission of this principle would at once settle the question as to the human race, but the criterion is liable to insuperable objections.

This rule, however, involves a *petitio principii*, in assuming that animals of distinct species never produce together a prolific offspring. Generally, indeed, hybrid animals, or the offspring of any two species, are incapable of generation; and this is a powerful additional provision for preserving uniformity of species. There are, however, instances, both among the mammalia and birds, of individuals belong-

ing to species universally held to be distinct, uniting and producing young, which were again prolific. That the mule can engender with the mare, and that the she mule can conceive, was known to Aristotle. The circumstance is said to occur most frequently in warm countries; but it has taken place in Scotland. Buffon states that the offspring of the he-goat and ewe possesses perfect powers of reproduction. We might expect these animals, with the addition also of the chamois, (antelope rupicapra) to copulate together easily, because they are nearly of the same size, very similar in internal structure, accustomed to artificial domestic life, and to the society of each other from birth upwards. There is a similar facility in some birds belonging to the genera fringilla, anas, and phasianus, where such unions are often fruitful and produce prolific offspring. The cock and hen canary-birds produce with the hen and cock siskin and goldfinch; the hen canary produces with the cock chaffinch, bullfinch, yellow-hammer, and sparrow. The progeny in all these cases is prolific, and breeds not only with both the species from which they spring, but likewise with each other. The common cock and the hen partridge, as well as the cock and the guinea hen,‖ the pheasant and the hen, can produce together.

The anser cygnoides (Chinese goose) copulates readily in Russia with the common goose, and produces a hybrid but perfectly prolific offspring: the race soon returns to the characters of the common goose, unless crossed again with the Chinese species.

The different breeds of dogs, for example, are referred by some to different species; and they are indeed sufficiently marked by distinctive permanent characters to warrant the opinion, if the constancy of such characters were a sufficient proof of difference in species.—Others, again, refer them all to the shepherd's dog; and others include all the dogs, the wolf, fox, and jackall, in one species. The dog and bitch produce with the male and female wolf, and with the dog and bitch fox, and the offspring is prolific. Yet we cannot surely ascribe animals which are marked in their wild state by such strong characters, of bodily formation, disposition, and habits—as the wolf, fox, and jackall, to one and the same species, without overturning all the fundamental principles of zoology, however freely they may intermix, and however perfect the reproductive power may be in their offspring.

We may conclude, then, from a general review of the preceding facts, that nature has provided, by the insurmountable barriers of instinctive aversion, of sterility in the hybrid offspring, and in the allotment of species to different parts of the earth, against any corruption or change of species in wild animals. We must therefore admit, for all the species which we know at present, as sufficiently distinct and constant, a distinct origin and common date. On the other hand, the fruitful intermixture which art has accomplished, of some of these species, will not justify us in ascribing to them identity of race or origin, when we see them in the natural wild state distinguished by constant characters from the typeof the neighboring species, and always producing an offspring marked by these characters.

Since this criterion therefore is inadmissible, the author resorts to the mode recommended by Blumenbach, which is, to draw our notions of species in zoology from analogy and probability.

If we see two races of animals resembling each other in general, and differing only in certain respects, according with what we have observed in other instances, we refer them without hesitation to the same species, although the difference should be so considerable as to affect the whole external appearance. On the contrary, if the difference should be of a kind which has never arisen, within our experience of the animal kingdom, as a variety, we must pronounce them to belong to distinct species, even although there should be on the whole, a great general resemblance between the two. "I see," says this acute and judicious naturalist, "a remarkable difference between the Asiatic and African elephants, in the structure of the molar teeth.—Whether these inhabitants of such distant regions will ever be brought to copulate together, and whether this formation be universal, is uncertain; but it exists in all the specimens I have seen or heard of; and I know no example of molar teeth changed in such a manner by degeneration or the action of adventitious causes: therefore I conjecture from analogy, that these elephants are not mere varieties, but truly different species. On the other hand, I hold the ferret (mustela furo) to be only a variety of the pole-cat (m. putorius,) not so much because they produce together, but because it has red pupils: and the analogy of numerous other instances induces me to regard all the other mammalia which are destitute of the coloring pigment of the eye, as varieties degenerated from their original stocks."

In chapter II. Dr. L. after a general description of the skin, proceeds to give an account of the diversities of colour in the human race. These tints, as the author remarks, are innumerable, embracing every gradation of colour, from the clear snowy white of the European female to the jet black colour of the darkest African. Notwithstanding these tints are separated by insensible gradations the national varieties of colour may with sufficient accuracy be referred to five principal classes.

I. *White*, to which redness of the cheeks is almost wholly confined, being observed, at all events, very rarely in the other varieties. It is seen in all the European nations, excepting the Laplanders; in the western Asiatics, as the Turks, Georgians, Circassians, Mingrelians, Armenians, Persians, &c.; and in the northern Africans.

II. *Yellow* or *olive* (gilvus or buxeus, a middle tint between that of ripe wheat and boiled quince or dried lemon-peel) characterizes the

Mongolian tribes, usually called, together with the inhabitants of great part of Asia, Tartars (Tatars.)

III. *Red or copper color* (*bronze* Fr. an obscure orange or rusty iron color, not unlike the bark of the cinnamon-tree) prevails in various shades over nearly the whole continent of America, and is almost confined to that division of the globe.

IV. *Brown or tawny* (*basane* Fr. a middle tint between the color of fresh mahogany and of cloves or chesnuts.) It characterizes the Malays, and most of the inhabitants of the numerous islands scattered through the Pacific Ocean.

V. *Black*, in various shades from the sooty color or tawny black, to that of pitch or ebony, or jet-black. This prevails very extensively on the continent of Africa, characterizing all the Negro tribes. It is found also in the Negro-like natives of New Holland, Van Diemen's Land, Papua or New Guinea, the New Hebrides, and other islands of the South Sea; and is seen, mingled with the national color, in Brazil, California, and India. The New Caledonians constitute an insensible transition, with the chesnut-colored islanders of Tongataboo, and the dark New Hollanders, from the tawny or brown Otaheiteans to the Papuas or Negroes of New Guinea.

In describing these varieties, it is necessary to fix on the most strongly marked tints, between which there is every conceivable intermediate shade of color. The opposite extremes run into each other by the nicest and most delicate gradations; and it is the same in every other particular in which the various tribes of the human species differ. This forms no slight objection to the hypothesis of distinct species: for, on that supposition, we cannot define their number, nor draw out the boundaries that divide them: whereas, in animals most resembling each other, the different species are preserved pure and unmixed. Neither does the color, which I have described in general terms as belonging to any particular race, prevail so universally in all the individuals of that race as to constitute an invariable character, as we should expect if it arose from a cause so uniform as an original specific difference; its varieties, on the contrary, point out the action of other circumstances. Thus, although the red color is very prevalent on the American continent, travellers have observed fair tribes in several parts; as, Ulloa and Bouguer in Peru; Cook and Vancouver at Nootka Sound; Humboldt near the sources of the Orinoco; and Weld near the United States. The natives of New Zealand vary from a deepish black to an olive or yellowish tinge. In the Friendly Islands many of the women are as fair as those of Spain or Portugal; several of both sexes are of an olive color; and many of a deep brown.

Children produced from the union of two different races exhibit the middle tint between those of their parents. This law holds universally, climate not making the slightest difference.

The general law, that animals produce their like, is liable to occasional exceptions; and hence in each of the races, persons are occasionally produced with characters resembling those of the opposite races. Variations of colour analogous to these occur among animals, and if these varieties are encouraged and preserved from intermixture, they form the ground for a permanent diversity of breed; otherwise the disposition to change is exhausted in one generation. In considering this as an explanation of the mode in which varieties of colour occur in the human race, it is not necessary to the adoption of the hypothesis that among any of the races varieties should arise presenting the full contrast of the greatest diversity which occurs in the human family. The negro and the European are the extremes of a very long gradation, and between these are intermediate stages, presenting no greater differences than are every day met with among the individuals of every race.

Chapter III. is devoted to the *hair, beard, and color of the iris.* The hair being implanted in the skin, and deriving its growth from the cutaneous vessels, might be supposed to vary with the changing conditions of the skin. The substance of which it is composed is indeed very analogous to that of the cuticle, being, like it, destitute of vessels, nerves, sensibility, and every other evidence of vitality. As an evidence that this presumption coincides with the fact, it may be remarked that the four colored varieties of men, the texture of whose skin is much denser and thicker than that of the whites, have black, strong and coarse hair. The varieties of the human hair are arranged by the author under the following heads.

1. Brownish, deviating into yellow (flaxen) or red on one side, and black on the other; copious, soft, long, and forming more or less distinct ringlets or undulations. It is seen in the temperate climates of Europe, and its light shades formerly attracted particular notice in the ancient Germans. The thin-skinned Albino has the softest and most colorless hair: in the Germanic race it is also very soft and light-colored; and red hair is usually found in conjunction with a thin and soft skin. The Celtic and Sclavonic races, which make up the chief population of Europe, the eastern Asiatics, and northern Africans, have generally, with a rather thicker and darker skin, stronger, black, or dark brown, and more or less curling hair.

The lighter and darker kinds of hair will grow to very considerable lengths in Europeans, when not cut.

2. Black, strong, straight, and thin; in the Mongolian and American varieties. The greater part of the head is shaved by the Chinese; the portion of hair which they leave, often reaches the ground. The same remark holds good of the Americans.

3. Black, softer, dense, copious, and curled; in most of the South Sea Islanders.

4. Black and crisp, so as generally to be called woolly; common to all the Negro tribes. This is either formed into small and short masses, or it may admit of being combed to the length of three or four inches, still forming a kind of general woolly fleece.

This division, as a general one, is sufficiently accurate, although there are many exceptions to it. A similar diversity in regard to the color and texture of the hair, we find in the animal kingdom among those which have evidently descended from the same stock.

The different races of mankind exhibit considerable diversity in the beard, and the hair covering other parts of the body, as well as in that of the head. One of the most general characters of the dark colored races is a deficiency of the beard. And in connection with this circumstance we have a fact which goes far towards accounting for the diversities of the human race, viz; that all national peculiarities are cultivated as personal ornaments. In conformity with this principle almost all barbarians labor to eradicate the beard.

There is also a connexion between the color of the skin and the eyes, analogous to that pointed out between the skin and the hair. We see this in the proverbial connexion between the complexion and the eyes, as well as in the varying color of the hair and eyes in the different stages of human life. The different shades of the iris may all take place in different individuals of the same races, but they are also, sometimes characteristic of different races. Thus, blue eyes and yellow hair (cœrulei oculi rutilæ comæ) have characterized the German nations from the earliest history; and Linneus describes, in Sweden, the Gothlander with light hair and grayish blue eyes; the Fin with yellow hair and brown eyes: and the Laplander with dark hair and eyes. The iris is dark in all the colored tribes

of men, as well as in the dark complexioned individuals of the white variety, and in the negro is sometimes so dark, that close inspection is necessary to distinguish it from the pupil.

CHAPTER IV.—*Treats of Differences of Features; Forms of the Skull; Teeth, &c.*—The five following varieties are established by Blumenbach, after a careful comparison of numerous drawings of individuals from different countries; in situations where they are attracted by commerce from all parts of the world, as at London and Amsterdam. The distribution of course, only refers to leading traits, between which there are innumerable varieties, running into each other by insensible gradations.

1. An oval and straight face, with the different parts moderately distinct from each other; high and expanded forehead; nose narrow, and slightly aquiline, or at least with the bridge somewhat convex; no prominence of the cheek bones; small mouth, with lips slightly turned out, particularly the lower one; a full and rounded chin.

This is the kind of countenance which accords most with our ideas of beauty: it may be considered as a middle, departing into two extremes, exactly opposed to each other in most respects, yet agreeing in having a low and receding forehead. In one, the face is expanded laterally; in the other, it is lengthened forwards or downwards. Each of these includes two varieties, which are most readily distinguished by a profile view; one, in which the nose and other parts run together; and the other, in which they are more prominent and separate.

2. Broad and flattened face, with the parts slightly distinguished, and as it were running together: the space between the eyes flat and very broad, flat nose, rounded projecting cheeks: narrow and linear aperture of the eyelids extending towards the temples, (*yeux brides*, Fr.) the internal angle of the eye depressed towards the nose, and the superior eyelid continued at that part into the inferior by a rounded sweep: chin slightly prominent.

This is the face of Mongolian tribes; commonly called in English the Tartar face, from the confusion of the Tartars (Tatars) with the Mongols.

3. Face broad but not flat and depressed, with prominent cheek-bones; and the parts, when viewed in profile, as it were more deeply and distinctly carved out. Short forehead, eyes deeply seated, nose flattish, but prominent. Such is the countenance of most Americans.

4. Narrow face projecting towards its lower part; narrow, slanting, and arched forehead; eyes prominent (*a fleur de tete,*) a thick nose, confused on either side with the projecting cheeks (*nez epate;*)

the lips, particularly the upper one, very thick; the jaws prominent, and the chin retracted. This is the countenance of the negro—the Guinea face.

5. The face not so narrow as in the preceding, rather projecting downwards, with the different parts in a side view rising more freely and distinctly. The nose rather full and broad, and thicker towards its apex (bottle-nosed.) The mouth large. This is the face of the Malays, particularly of the South-Sea Islanders.

From the consideration of the countenance, we pass by an easy transition to the various formations of the skull. We are indebted to Blumenbach for the principal part of the information we possess upon this subject, who has devoted to it a great deal of labor, and has been enabled to illustrate it by a collection of the skulls of different nations from every part of the globe.

The differences between the proportions and the direction of the various parts of the head in different skulls, is so great, that it is difficult to reduce them to any one scale of measurement, or to compare them with each other at one view. The point of view which Blumenbach recommends, as best calculated to present, at one glance, the various differences which make up the national character of the cranium, is the following. The skulls are placed on a table, with the zygomas perpendicular, and viewed from behind; and we thus are enabled to perceive at once the most important points of the head; the direction of the jaws and cheek bones, the breadth or narrowness of the head, and the advancing or receding outline of the forehead. This method of considering the bony head B. calls the *norma verticalis*. This arrangement of the different races, drawn from the form of the skull, will coincide in many respects with that pointed out by the diversity of the features.

In the first, or white variety of man, to which Blumenbach has given the epithet *Caucasian*—including the ancient and modern inhabitants of Europe, the western Asiatics, or those on this side of the Caspian Sea, the rivers Ob and Ganges, and the northern Africans; in a word, nearly all the inhabitants of the world as known to the ancients,—the skull presents the finest intellectual organization; proportions indicating the greatest predominance of the rational faculties over the instruments of sense and of the common animal wants. The upper and front parts of the skull are more developed than in any

other variety; and their ample swell completely hides the face, when we survey the head according to the *norma verticalis.* The facial line must, therefore, be nearly vertical; and the facial angle nearly a right angle. The face is comparatively small, and its outlines rounded, without any thing harsh or unpleasantly prominent. The cheek bones are small, and do not stand out, but descend in a nearly straight line from the external angular process of the frontal bone. The alveolar margin of the jaws is rounded; and the front teeth are perpendicular in both. The chin is full and prominent.

The characters above described belong to the following people, whether ancient or modern; viz. the Syrians and Assyrians, Chaldeans, Medes, Persians, Jews, Egyptians, Georgians, Circassians, Mingrelians, Armenians, Turks, Arabs, Afghans, Hindoos of high caste, Gipsies, Tartars, Moors, and Berbers in Africa, Guanches in the Canary Islands, Greeks, Romans, and all the Europeans except the Laplanders. The enumeration includes all the human races in which the intellectual endowments of man have shone forth in the greatest native vigor, have received the highest cultivation, and have produced the richest and most abundant fruits in philosophy, science and art, in religion and morals, in poetry, eloquence, and the fine arts, in civilization and government—in all that can dignify and ennoble the species. We cannot, therefore, wonder that they should in all cases have not merely vanquished, but held in permanent subjection, all the other races.

A very great difference of opinion has prevailed upon the question, whether the ancient Egyptians belonged to the Caucasian, or to the Ethiopian variety, and the opinion has very extensively prevailed, that they belonged to the latter. It is, however, at present the opinion of Cuvier, Blumenbach, and of all anatomists and naturalists who have had opportunity of examining the crania of Egyptian mummies, that they belonged to the Caucasian variety. Occasional specimens are met with bearing traces of the Negro conformation, but the greater number by far, are evidently not of that race.

The four following varieties exhibit, in comparison with the former, a less perfect development of the upper and anterior parts of the cranium, and consequently a comparatively inferior organization of the intellectual faculties. It is to be recollected, however, that this remark is to be understood in a very general sense. In forming a classification of this kind, the extreme points of difference are sought for, to render the contrast more complete, and consequently, we will expect to find in each

of the classes individuals, whose organization and mental faculties partake of the characters of the opposite race.

Every white man has not the mental endowments of a Newton, nor do we expect to find the signs of intellectual inferiority in the forehead of every Negro.

The second or Mongolian variety includes those Asiatics which do not come under the first division, and the inhabitants of the northern parts of America and Europe. The forehead is low and slanting, and the head altogether of a square form. The cheek bones stand out widely on either side. The glabella and ossa nasi, which are flat and very small, are placed nearly on the same plane with the malar bones. There are scarcely any superciliary ridges. The entrance of the nose is narrow; the malar fossa forms but a slight excavation. The alveolar edge of the jaws is obtusely arched in front; the chin rather prominent. This formation is most strikingly exhibited in the Mongolian tribes, which are widely scattered over the continent of Asia, and which have generally, but erroneously been included, with others of different origin and formation, under the name of Tartars (Tatars;) whereas the last-mentioned tribes, properly so called, belong to the first division of the human race. The Calmuck and other Mongolian nations which overran the Saracen empire under Zenghis Khan, in the thirteenth century, and had entered Europe, are described in the *Historia Major* of MATTHEW PARIS, under the name of *Tartars;* whereas that appellation, or rather Tatars, properly belongs to the western Asiatics, who had been vanquished by the Mongols. The error, however, arising from this source has been propagated down to the present day; so that in the works of the most approved naturalists, as BUFFON and ERXLEBEN, we find the characters of the Mongolian race ascribed to what they call the Tartars. The mistake has not been detected, even by the most celebrated and classical modern historians: For Dr. ROBERTSON speaks of Zenghis as the Emperor of the Tartars.

The third or Ethiopian variety comprehends all the Africans which are not included within the first or Caucasian division; all of whom partake, more or less, of the well known Negro form.

The front of the head, including the forehead and face, is compressed laterally, and considerably elongated towards the front; hence the length of the whole skull, from the teeth to the occiput, is considerable. It forms, in this respect, the strongest contrast to that globular shape which some of the Caucasian races present, and which is very remarkable in the Turk.

The capacity of the cranium is reduced, particularly in its front part, where it appears as if the forehead had been sliced off. The face, on the contrary, is enlarged.

"I measured," says Soemmering, "several Negro, and nearly all my European crania, in order to compare the capacity of the respec-

tive cerebral cavities. I found in the former, 1st, That the measure taken by carrying a string from the root of the nose, along the middle of the forehead and the sagittal suture, to the posterial edge of the foramen ovale, the length of the face being equal, was much shorter. 2dly, That the horizontal circumference, measured by a string carried round the head above the eyebrows and the superior edge of the temporal bone, was much less. 3dly, That neither the long diameter from the forehead to the occiput, nor any transverse diameter between the parietal or the temporal bones, is equal to the corresponding one in the European."

The characters of the Ethiopian variety, as observed in the genuine Negro tribes, may be thus summed up; 1. Narrow and depressed forehead; the entire cranium contracted anteriorly; the cavity less, both in its circumference and transverse measurements. 2. Occipital foramen and condyles placed farther back. 3. Large space for the temporal muscles. 4. Great development of the face. 5. Prominence of the jaws altogether, and particularly of their alveolar margins and teeth; consequent obliquity of the facial line. 6. Superior incisors slanting. 7. Chin receding. 8. Very large and strong zygomatic arch projecting towards the front. 9. Large nasal cavity. 10. Small and flattened ossa nasi, sometimes consolidated, and running into a point above.

In the two following varieties, the figure of the skull is not so strongly characterized as in the three which have been already considered. They form, indeed, two intermediate gradations between the European and Mongolian on one side, and the African on the other.

The fourth, or American, variety includes all the Americans, except the inhabitants of the northern parts of the continent, which I have placed in the Mongolian division.

In this variety the cheeks are broad, but the malar bones are more rounded and arched than in the Mongolian; and not expanded to such an extent on either side, nor possessing such an angular form. The forehead is small and low, the orbits deep; and the nasal cavity, in many cases at least, very large. The entire bony apparatus of the face is in general much developed.

The fifth or Malay variety, including the inhabitants of numerous Asiatic Islands, and those of the Great Pacific Ocean, constitutes an intermediate link between the European and Negro. The cranium is moderately narrowed and slanting at its anterior and upper part; the face large, and all its parts fully developed; the jaws more or less prominent.

It must be confessed, that the numerous tribes included within the boundaries of this variety differ considerably from each other; and consequently, that the whole cannot fall within one clearly marked character. The Papua race are described as having all the appearance of Negroes; I have seen no skull, nor any representation of one belonging to a native of New Guinea. The New Hollanders certainly partake of the Negro form, yet are still easily distinguishable from

African Negroes. In the two heads engraved by Blumenbach, the forehead rather slants above the eyes, but the head rises to a considerable height at the coronal suture. The nose is not so flat, nor the zygoma so prominent, as in the African. The alveolar edge of the upper jaw projects in front; the chin is not cut off, as in the Negro. The crania of New Hollanders which I have seen, correspond with these. In some, as in a female skull in the College Museum, the superior incisors are placed as obliquely as in the Negro; but none have so low a forehead and vertex as some of that race.

The arrangement of skulls under the five general forms just described is, in a great measure arbitrary. It must not, therefore, be taken in a strict sense: we must not expect to find all the individuals, comprised under each of these varieties, decisively distinguished by the assigned characters from all others. In the endless diversity of individual forms, many instances are met with, in each variety, of organizations approaching to those of the others; so that among many Europeans and Negroes we might select skulls in which it would be difficult to determine the predominant character. The two intermediate forms between the Caucasian middle, and the Ethiopian and Mongolian extremes, complete the series of gradations. Of the numerous tribes or nations in each division, some come nearer to one and some to the other of the two immediately adjoining varieties.

We must therefore conclude, that the diversities of features and of skulls are not sufficient to authorize us in assigning the different races of mankind in which they occur to species originally different. This conclusion will be strengthened by the analogies of natural history. The differences between human crania are not more considerable, nor even so remarkable, as some variations which occur in animals confessedly of the same species. The head of the wild boar is widely different from that of the domestic pig. The different breeds of horses and dogs are distinguished by the most striking dissimilarities in the skull; in which view, the Neapolitan and Hungarian horses may be contrasted. The very singular form of the skull in the Paduan fowl is a more remarkable deviation from the natural structure than any variation which occurs in the human head.

For the variety of features occurring among the different races of mankind, no natural cause is sufficiently uniform in its operation to afford a satisfactory explanation. It has indeed been asserted by high authority, that climate has a gradual influence in assimilating the countenance of tribes who have left their original abode, to the cast of features prevalent in the country in which they have taken up their habitations. All observation, however, proves the reverse of this. Specific differences prevail over too large an extent of the globe, and under too great a variety of climate to be much under the influence of

physical causes. But we have evidence more to the point, in the fact that colonies of the different races have, for centuries, preserved their characteristic features, among a people forming a perfect contrast to them in almost every respect.

CHAPTER V. treats of *Varieties in Figure, Proportions, Strength, &c.*—We have little room for quotations from this chapter, altho' the subject is far from being an uninteresting one. It is a curious circumstance, and one we think not generally known, that, *cæteris paribus*, individuals of the Caucasian variety are more robust in their form, particularly about their loins, than any other of the families of mankind,—the dimensions of the European being greater than that of the negro in this respect, in the proportion of 1-4 or 1-3. The following quotation shews some:

In order to procure some exact comparative results on this point, Peron took with him on his voyage an instrument called a dynamometre, so constructed, as to indicate, on a dial-plate, the relative force of individuals submitted to experiment. He directed his attention to the strength of the arms and of the loins, making trial with several individuals of each kind; viz. twelve natives of Van Diemen's Land, seventeen of New Holland, fifty-six of the island of Timor, seventeen Frenchmen belonging to the expedition, and fourteen Englishmen in the colony of New South Wales. The following numbers express the mean result in each case; but the details are all given in a tabular form in the original.

	STRENGTH	
	of the Arms. Kilogrammes	of the Loins. Myriagrammes.
1. Van Diemen's Land - - - - - -	50.6	
2. New Holland - - - - - - - -	50.8	10.2
3. Timor - - - - - - - - - -	58.7	11.6
4. French - - - - - - - - - -	69.2	15.2
5. English - - - - - - - - - -	71.4	16.3

The highest numbers in the first and second class were respectively 60 and 62; the lowest in the English trial, 63, and the highest 83, for the strength of the arms. In the power of the loins, the highest among the New Hollanders was 13, the lowest of English 12.7, and the highest 21.3.

It was also remarked in a former part of this work, that one of the distinctions between man and the monkey tribes, was to be found in the comparative length of the ulna. Something

like this difference is also found between the European and the other varieties of the human race. From the admeasurement of a number of European skeletons, the humerus was found to exceed the ulna from 2 1-2 to 4 inches, while in the other races the difference is from 1 1-2 to 2 1-4 inches. Upon the account of some other differences, more obvious indeed and curious, but less important in their relations to the present subject, we shall not dwell.

Chapter VI. *On Differences of Stature; Origin and Transmission of Varieties in Form.*—Very considerable differences of stature, both as individual varieties, and as peculiarities of certain tribes, are to be met with. The standard stature in the temperate climates of Europe and America may be considered as between five and six feet. Many well authenticated cases are recorded of individuals falling as low as three feet, on the one hand; and again rising as high as eight feet, and even eight and a half, on the other. But of those who exceed the natural standard, it is seldom observed that their corporeal powers bear any proportion to their size; or that healthy constitutions and good proportions are found among dwarfs.

Beside these individual differences, tribes are found among all the five varieties of the human race, conspicuous for their size and strength, and others remarkable for their small stature and inferior muscular power. External influences are observed to have little effect upon the stature; these varieties not being connected with any peculiarity of temperature, climate, situation, or mode of life. The most remarkable deviations above the common standard, are to be found in the Patagonians of South America and the Kaffers of Africa—most of these tribes reaching to the height of six feet, many to six and a half, and a few excelling seven. It is not a little remarkable that the latter, the Kaffers, are contiguous to the Hottentots, the smallest of all the African race. To the general rule that climate exerts little influence over the human stature, are to be excepted the inhabitants of high northern latitudes,—the Laplanders, Samoides, Ostiacks, Greenlanders, Esquimaux, &c., all of

whom are remarkably short in their stature, and very ill-proportioned, although muscular and robust.

In accounting for the diversities of the human race, Mr. L., after alluding to the numberless varieties in form, size, color, and other external qualities, which are found among the domestic animals, varieties much greater than any occurring among mankind, makes the following remarks:

In endeavoring to account for the diversities of features, proportions, general form, stature, and the other particulars mentioned in the three preceding chapters, I must repeat an observation already made and exemplified in speaking of color; namely that the law of resemblance between parents and offspring, which preserves species, and maintains uniformity in the living part of creation, suffers occasional and rare exceptions; that, under certain circumstances, an offspring is produced with new properties, different from those of the progenitors; and that the most powerful of these causes is that artificial mode of life which we call the state of domestication.

Native or congenital peculiarities of form, like those of color, are transmitted by generation. Hence we see a general similitude in persons of the same blood; and can distinguish one brother by his resemblance to another, or know a son by his likeness to the father or mother, or even to the grandfather or grandmother. All the individuals of some families are characterized by particular lines of countenance: and we frequently observe a peculiar feature continued in a family for many generations. The thick lip introduced into the Imperial house of Austria, by the marriage of the Emperor Maximilian with Mary of Burgundy, is visible in their descendants to this day, after a lapse of three centuries. Haller observes, that his own family had been distinguished by tallness of stature for three generations, without excepting one out of numerous grandsons descended from one grandfather.

Individuals are occasionally produced with supernumerary members on the hands or feet, or on both; and from these, whether males or females, the organic peculiarity frequently passes to their children.—This does not constantly happen, because they intermarry with persons of the ordinary form; but if the six-fingered and six-toed could be matched together, and the breed could be preserved pure by excluding all who had not these additional members, there is no doubt that a permanent race might be formed constantly possessing this number of fingers and toes.

Another remarkable example of the occurrence of a singular organic peculiarity, and of its hereditary transmission, is afforded by the English family of porcupine men, who have derived that name from the greater part of the body being covered by hard dark colored excrescences of a horny nature. The whole surface, excepting the head and face, the palms and soles, is occupied by this unnatural kind of integu-

ment. The first account of this family is found in the *Philosophical Transactions*, No. 423, and consists of the description of a boy named Edward Lambert, fourteen years old, born in Suffolk, and exhibited to the Royal Society in 1731, by Mr. Machin, one of the secretaries.

They are shed annually, in the autumn or winter, and succeeded by a fresh growth, which at first are of a paler brown. "He has had the small pox, and been twice salivated, in hopes of getting rid of this disagreeable covering; during which disorders the warts came off, and his skin appeared white and smooth, like that of other people; but on his recovery it soon became as it was before. His health at other times has been very good during his whole life." "He has had six children, all with the same rugged covering as himself; the first appearance whereof in them, as well as in him, came on in about nine weeks after the birth. Only one of them is living, a very pretty boy, eight years of age, whom I saw and examined with his father, and who is exactly in the same condition."

Two brothers, John Lambert, aged twenty-two, and Richard, aged fourteen, who must have been grandsons of the original porcupine man, Edward Lambert, were shown in Germany, and had the cutaneous incrustation already described. A minute account of them was published by Dr. W. G. Tilesius, who mentions that the wife of the elder, at the time he saw him, was in England, pregnant.

This resemblance of offspring to parents, in native peculiarities of structure, prevails so extensively, that those minute and in many cases imperceptible, differences of organization or vital properties, which render men disposed to particular diseases, are conveyed from father to son for age after age. This is matter of common notoriety with respect to scrofula, consumption, gout, rheumatism, insanity, and other affections of the head. There is more doubt in some other cases, as hare-lip, squinting, club-foot, hernia, aneurism, cataract, fatuity, &c.; of which, however, there are many well authenticated examples. There is an hereditary blindness in a family in North America, which has always affected some individuals for the last hundred years. I have attended, at different times, for complaints of the urinary organs, a gentleman, whose father and grandfather died of stone.

In small and secluded communities, where marriages take place within what we may regard only as a more extensive family, hereditary varieties are blended, and produce one form, which prevails through the whole circle. The operation of this principle may be clearly perceived in several small districts: it will act with more efficacy, and, consequently, be more discernable in larger collections of men, where differences of manners, religion, and language, and mutual animosities, forbid all intermarriages with surrounding people. In the course of time the individual peculiarities are lost, and a national characteristic countenance or form is established, which, if the restrictions of intercourse are rigidly adhered to, is constantly more and more strengthened. The ancient Germans, according to the descrip-

tion of Tacitus, were such a people; and his short, but expressive sketch of their character, most aptly confirms the preceding view: "Ipse eorum opinionibus accedo, qui Germaniæ populos nullis aliarum nationum connubiis infectos, propriam et sinceram et tantum sui similem gentem exitisse arbitrantur. Unde habitus quoque corporum, quanquam in tanto hominum numero, idem omnibus; truces et cærulei oculi, rutilæ comæ, magna corpora." *De Morib. Germ.*

The Gipsies afford another example of a people spread over all Europe for the last four centuries, and nearly confined in marriages, by their peculiar way of life, to their own tribe. In Transylvania, where there is a great number of them, and the race remains pure, their features can consequently be more accurately observed: in every country and climate, however, which they have inhabited, they preserve their distinctive character so perfectly, that they are recognized at a glance, and cannot be confounded with the natives. But, above all, the Jews exhibit the most striking instance of a peculiar national countenance, so strongly marked in almost every individual, that persons the least used to physiognomical observations detect it instantly, yet not easily understood or described. Religion has in this case most successfully exerted its power in preventing communion with other races; and this exclusion of intercourse with all others has preserved the Jewish countenance so completely in every soil and climate of the globe, that a miracle has been thought necessary to account for the appearance.

In what other way can we explain the difference between the English and Scotch? Would it be more reasonable to suppose that they descended from different stocks; or to ascribe the high cheek bones of the latter to the soil or climate?

As, on the one hand, a particular form may be perpetuated by confining the intercourse of the sexes to individuals in whom it exists: so, again, it may be changed by introducing into the breed those remarkable for any other quality. Connexions in marriage will generally be formed on the idea of human beauty in any country; an influence, this, which will gradually approximate the countenance towards one common standard. If men, in the affair of marriage, were as much under management as some animals are in the exercise of their generative functions, an absolute ruler might accomplish, in his dominions, almost any idea of the human form.

The great and noble have generally had it more in their power than others to select the beauty of nations in marriage: and thus, while, without system or design, they gratified merely their own taste, they have distinguished their order, as much by elegant proportions of person, and beautiful features, as by its prerogatives in society. "The same superiority," says Cook, "which is observable in the crees or nobles in all the other islands, is found here (Sandwich Islands.) Those, whom we saw, were, without exception, perfectly well-formed; whereas, the lower sort, besides their general inferiority, are subject to all the variety of make and figure that is seen in the populace of other countries.

In no instances, perhaps, has the personal beauty of a people been

more improved, by introducing handsome individuals to breed from, than in the Persians, of whom the nobility have, by this means, completely succeeded in washing out the stain of their Mongolian origin. "That the blood of the Persians," says Chardin, "is naturally gross, appears from the Guebres, who are a remnant of the ancient Persians, and are an ugly, ill-made, rough skinned people. This is also apparent from the inhabitants of the Provinces in the neighborhood of India, who are nearly as clumsy and deformed as the Guebres, because they never formed alliances with any other tribes. But, in the other parts of the kingdom, the Persian blood is now highly refined by frequent intermixtures with the Georgians and Circassians, two nations which surpass all the world in personal beauty. There is hardly a man of rank in Persia who is not born of a Georgian or Circassian mother; and even the King himself is commonly sprung on the female side, from one or other of these countries. As it is long since this mixture commenced, the Persian women have become very handsome and beautiful, though they do not rival the ladies of Georgia. The men are generally tall and erect, their complexion is ruddy and vigorous, and they have a graceful air and an engaging deportment. The mildness of the climate, joined to their temperance in living, has a great influence in improving their personal beauty. This quality they inherit not from their ancestors: for without the mixture mentioned above, the men of rank in Persia, who are descendants of the Tartars, would be extremely ugly and deformed."

There is no one of the varieties above enumerated, which does not exist in a still greater degree in animals confessedly of the same species. What differences in the figure and proportion of parts in the various breeds of horses—in the Arabian, the Barb, and the German! How striking the contrast between the long-legged cattle of the Cape of Good Hope and the short-legged of England! The same difference is observed in swine. The cattle have no horns in some breeds of England and Ireland: in Sicily, on the contrary, they have very large ones. A breed of sheep, with an extraordinary number of horns, as three, four, or five, (ovis plycerata,) occurs in some northern countries; as, for instance, in Iceland, and is accounted a mere variety. The Cretan breed of the same animal (ovis strepsiceros) has long, large, and twisted horns. We may also point out the solid-ungular swine, with undivided hoof, as well as others with three divisions of that part; the five-toed fowl (gallus pentadactylus;) the fat-rumped sheep of Tartary and Thibet; and broad-tailed breed of the Cape, in which the tail grows so large that it is placed on a board supported by wheels, for the convenience of the animal; and the rumpless fowl (galius ecaudatus) of America, and particularly Virginia, which has undoubtedly descended from the English breed.

The hereditary transmission of physical and moral qualities, so well understood and familiarly acted on in the domestic animals, is equally true of man. A superior breed of human beings could only be produced by selections and exclusions similar to those so successfully employed in rearing our more valuable animals. Yet, in the

human species, where the object is of such consequence, the principle is almost entirely overlooked. Hence all the native deformities of mind and body, which spring up so plentifully in our artificial mode of life, are handed down to posterity, and tend by their multiplication and extension to degrade the race. Consequently, the mass of the population in our large cities will not bear a comparison with that of savage nations, in which if imperfect or deformed individuals should survive the hardships of their first rearing, they are prevented, by the kind of aversion they inspire, from propagating their deformities. The Hottentots have become almost proverbial for ugliness; and one of their tribes, the Bosjesmen, are plainly marked, by an acute and intelligent traveller, "among the ugliest of human beings." The numerous sketches of Bosjesmen and Hottentots, taken by Mr. S. Daniel, have been very kindly and politely shown to me by his brother, Mr. W. Daniel. In form, variety, and expression of countenance, they are not at all inferior to our cockneys; while in animation, in beauty, symmetry, and strength of body, in ease and elegance of attitude, they are infinitely superior.

This inattention to breed is not, however, of so much consequence in the people, as in the rulers; in those to whom the destinies of nations are intrusted; on whose qualities and actions depend the present and future happiness of millions. Here, unfortunately, the evil is at its height: laws, customs, prejudices, pride, bigotry, confine them to intermarriages with each other; and thus degradation of race is added to all the pernicious influences inseparable from such exalted stations. What result should we expect, if a breeder of horses or dogs were restricted in his choice to some ten or twenty families taken at random? if he could not step out of this little circle, to select finely-formed or high-spirited individuals? How long a time would elapse before the fatal effects of this in-breeding would be conspicuous in the degeneracy of the descendants? The strongest illustration of these principles will be found in the present state of many royal houses in Europe; the evil must be progressive, if the same course of proceeding be continued.

I shall cite a single example to prove what will, to most persons, seem unnecessary; namely, that mental defects are propagated, as well as corporeal. "We know," says Haller, "a very remarkable instance of two noble females, who got husbands on account of their wealth, although they were nearly idiots, and from whom this mental defect has extended for a century into several families; so that some of all their descendants still continue idiots in the fourth and even in the fifth generation."

Chapters VII. and VIII. are taken up with an account of the *Differences of Language*, and of *Moral and Intellectual Qualities*. On the subject of language, we have room for the following extract only:

One of the most curious points in the subject of language is the continued existence in a large portion of Asia, very anciently civilized, and considerably advanced at least in the useful arts, of simply monosyllabic languages. Their words are merely radical sounds of one syllable, not admitting of inflection or composition, so that all modifications and accessory ideas must be either overlooked or imperfectly expressed by tedious and awkward circumlocution. Such are the languages of Thibet, the contiguous immense empire of China, and the neighboring countries of Ava, Pegu, Siam, Tungquin, and Cochin-china. "These extensive regions, and these only in the whole world, betray in their present language all the imperfection of the first attempts at speech. As the earliest efforts of the infant are merely sounds of one syllable, so the first adult children of Nature stammered out their meaning in the same way: the people of Thibet, China, and the neighboring southern countries, go on speaking as they learned some thousands of years ago, in the cradle of the species. There is no separation of ideas into certain classes, such as produce the distinction of the parts of speech in more perfectly-formed languages.—One and the same sound signifies *joyful, joy*, and *to rejoice;* and that through all persons, numbers, and tenses. No attempt is made, by affixing sounds expressive of relations or accessory notions to the simple monosyllabic root, to give richness, clearness, and harmony to the poor language. On the contrary, the mere radical ideas are set down together, and the hearer must guess at the connecting links. As there are no inflections, the cases and numbers are either not noted, or they are marked, under urgent circumstances, by circumlocution. They form plurals as children do, either by repetition, as *tree, tree*, or by adding the words *much* or *other;* as *tree much, tree other. I much*, or *I other*, means *we. Be Heaven I other Father who*, is the mode of expressing "Our Father which art in heaven!" "That languages of such poverty, which merely place together the most essential ideas without connecting them, must open a wide field for ambiguity and obscurity in civil life, and be totally inapplicable to the purposes of science, is immediately apparent. Hence the people who speak them must ever remain children in understanding. However the Chinese may exert themselves, so long as they are impeded by this imperfect language, they must be unable to appropriate to themselves the sciences and arts of Europe."

It is a matter of surprise that this peculiarity of language does not extend to many of the neighboring nations, who very closely resemble the Chinese in external conformations, as well as in moral and social habits and religious institutions. The Japanese have a well-formed polysyllabic language, without any resemblance to that of the Chinese. The languages of the American tribes of Indians form a curious contrast to that of

the Chinese, in the length of their words, and in the capability of inflection and composition.

The causes of the diversities of language are very imperfectly understood. It is easy to conceive that the various degrees of natural capacity, and of intellectual and social improvement, will very materially influence both the structure and the copiousness of language. Language also will be not less influenced in its structure, copiousness, and precision, by the arts of writing and printing. Of the extent of this influence, an imperfect idea may be formed by comparing the powers of language possessed by an individual of a highly cultivated mind, with one of the same nation destitute of the advantages of intellectual improvement. Even this comparison, however, will convey a very imperfect idea of the improvement which language derives from writing, for the language of the most untutored individual, must partake, to a certain extent, of the intellectual improvements of the society in which he lives. Such is the influence of a written language; but hieroglyphic writing, like that of the Chinese, can tend but very little to the improvement of the language of a country. By affording a species of intellectual labor to men of leisure, it may tend, in some degree, to rescue those who direct public opinion from the degrading influence of sensual indulgence, and thus lead to the prosecution of arts which may give some dignity and refinement to society at large; but still, a people who have no better method of preserving and transmitting the discoveries of genius, must always remain children in science, and stationary in improvement. The wisdom and learning of their sages will be wasted upon trifles—upon the accumulation of proverbs and maxims; and their artists, unaided by complicated machinery, will literally earn their bread by the sweat of their brow.

On the subject of the moral and intellectual qualities, Mr. L. is disposed to attribute to the Caucasian variety the most unqualified superiority. If history could decide the question, their claims would indeed be indisputable. This variety of mankind alone have made great advances in learning and civilization; and among them only, have attempts been made, on a

large scale, to subject the elements to the dominion of man, or to establish the government of reason, intellect, and religion, over passion and brute force.

That there is a general intellectual superiority in the white races, all must admit; and when we know that the white races have always enjoyed a degree of civilization far superior to that of the other varieties of mankind, much of this difference may be attributed to the operation of a very general and familiar law. The law to which we refer is this, that intellectual qualities, as well as physical peculiarities, are hereditary. Now in the same way that national ideas of beauty will have an influence in regulating the physiognomy of a people, will the estimate they put upon intellect, have a gradual though imperceptible influence in elevating or depressing the intellectual character. Admitting that the strength of the intellect depends upon the development of the brain, if it were merely a matter of national taste that high foreheads were more beautiful than depressed and retreating ones, this simple fact, upon the principles of Mr. L. himself, would have its influence in affecting the conformation of the head, and consequently of improving the intellect. In addition to this, among all savage nations, in proportion to their degradation, strength and agility are prized above wisdom and intelligence; and where polygamy prevails, and where individual character and the sustenance of families depends entirely upon the exertion of these corporeal qualities, their influence would be far greater upon the character, than could possibly result from national ideas of personal beauty upon the physiognomy among a civilized people.

Much of the weight of Mr. L.'s reasoning upon this subject depends upon the assumption of the fact that the different nations of the world were once equally barbarian, and that language, science, and religion, are human inventions—an assumption purely gratuitious, and in opposition to which, the strongest arguments, drawn from history, and observation, can be adduced. There is indeed every reason to believe, that nations, destitute of letters, and placed below a certain grade of civilization, will continue to retrograde in every respect, nntil they

become the most worthless of savages. If man has derived his existence from a superior being, it requires no great stretch of credulity to suppose, that his Creator would bestow upon him all the gifts necessary to the enjoyment of that social condition for which he is evidently intended, and that he should give him, among the rest, a knowledge of himself, and a medium of social intercourse. In other words, if God intended to people the earth with intelligent creatures, it is a fair presumption that he would create the parents of the race in full perfection, that he would make them—not children, but men, in knowledge and virtue, as well as in stature.

It is much more easy to conceive that different colonies setting out from the patriarchal government would carry with them varying degrees of knowledge and religion, and that some, from adverse circumstances, would lose the little they possessed, while others, placed in situations favorable to improvement, might make great advances in civilization and refinement; than to believe that naked savages, associated by accident or for mutual defence, would invent language, religion, and letters. Improvement in science or the arts, proceeds in a regular gradation, each series resting upon the one that precedes it. The tendency of mankind at large is, to tread with faithful servility in the steps of their ancestors. Inventive genius is rare, and its successful exertion presupposes on the part of the individual, education, (the acquisition of which, without some kind of oral communication, is inconceivable,) and, on the part of the society, encouragement and assistance. It is easy to believe, therefore, that in a state of society below a certain grade of intellectual culture, circumstances may arise, under which, genius, from want of encouragement, will ever remain inactive, or its solitary labors, disregarded or unappreciated, fail in making any useful impression upon society.

It is further to be recollected, that, in making a cursory comparison between civilized and savage nations, impressed with the striking contrast which their respective social condition exhibits, we are apt to attribute to the former a much greater intellectual superiority than individual observation will justify.

The refinement of a nation depends very much upon accidental circumstances—upon its prosperity, its language, its literature, and, above all, its religion. In the best informed communities, we find wide-spread ignorance, error, prejudice, superstition and bigotry, and large bodies of men adopting implicitly the opinions of their superiors, and dependent on them for all that they enjoy of education or civilization.

If "the three religions which exhibit the only worthy views the Deity," are mere human inventions, to be set down to the credit of the Caucasian variety, (not a very modest assumption, by the way,) this highly gifted race can derive very little honor from their discovery, since the first was confined for centuries to a small nation, so insensible to its value as to be continually running into the grossest superstitions of their neighbors; the principles of the second, the most sublime of them all, were discovered by an obscure individual, and made their way into notice through the aid of the lower orders of society, amidst the persecution and philosophy of the times; while the last of the three, a mere excrescence from the two former, was established by the sword of a set of banditti.

The same remark may be applied to the art of writing. Notwithstanding the fact, that many nations of the Caucasian variety have been destitute of learning for centuries, authentic history gives no account of a Cadmus, except in the instance of an uneducated Cherokee, who has, within a few years, invented a syllabic alphabet adapted to his native language. All history in the mean time discountenances the presumption that the condition of any tribe of savages has been materially improved in any other way than by the importation of the knowledge and arts of their more civilized neighbors.

The American savages are almost universally distinguished for their bravery and love of liberty. Men truly great have also appeared among them, but adverse circumstances have controlled their destiny, and rendered abortive their labors for the improvement of their country. Nor is this surprising among savages, when we consider the reception of reformers among much more enlightened people,—of Socrates, Wickliffe,

Huss, Galileo, and Vesalius; the annihilation of the Waldenses, the persecution of Luther, and the expulsion of the Huguenots; when we recollect that Milton was compelled to appeal to posterity in behalf of Paradise Lost, and that Newton's theory of gravitation was long a subject of ridicule among the learned; and when we have been compelled to witness, in our own enlightened age, those whose discoveries have since revolutionized the commerce and the manufactures of the world, living upon charity, the very men who fed them ashamed of their society, and dying at last of chagrin and mortification, without being permitted to witness the result of their labors.

When the author speaks of the comparative humanity of the white races to their conquered enemies, he forgets that war itself, carried on for the purpose of ambition or aggrandisement, is the height of inhumanity, and overlooks the more palpable brutality of the Roman gladiatorial exhibitions justified by the philosophic Cicero, the cruelties of the Triumviri and the Emperors, the Inquisition, the massacre of St. Bartholomew, the war between Spain and the Netherlands, and the ravages of the former power in the New World, the French revolution, with the unnumbered instances of violence and oppression which deform the pages of history. Tecumseh and King Philip are represented, as far as their education and circumstances permitted, to have been generous and humane; and if Marlborough, Eugene and Napoleon do seem to have possessed more of the milk of human kindness, it proves very little more than that the discipline of the camp had not eradicated from their minds a decent regard for the opinions of mankind, nor the practice of war, by entirely closing the heart against the claims of humanity, imparted a disposition to aggravate, unnecessarily, the suffering which their ambition was calculated to produce.

The question of the possibility of civilizing the colored races of mankind has not yet been made the subject of fair experiment. In accomplishing this object, the friends of humanity have difficulties of the utmost magnitude to encounter—to supplant their religion, to enlighten their minds, to substitute in-

dustry for the love of ease or the fascinating pleasures of the chase, to counteract the pernicious influence of vicious white men, and to remove the prejudices which must prevail against men who have heretofore come to their abode only to cheat and oppress them.

If British commerce with India had been based upon the broad foundation of justice and mutual interest, instead of conquest and oppression, and if the European merchant had enriched Africa, by encouraging the inexhaustible resources of her luxuriant climate, instead of draining her vitals and debasing her morals, by the sale of her children, the social aspect of those countries would at this time have been very different.—The experiment is now making under circumstances calculated to give the question a definitive solution, and with prospects of final and complete success. This result cannot fail of being attended with the most beneficial consequences in drawing closer the ties by which the different nations of the earth are connected together; for although the inferiority of our brethren is far from affording a justification for depriving them of their rights, yet it is a fact that this absurd plea is, at all times, an important item in the defence of cruelty and oppression.

F.

Art. VI.—*Epidemic Cholera:—Its Pathology and Treatment.* An Eclectic Review.

Reversing the common order of medical disquisition, we propose to reserve the ætiological history of Epidemic Cholera for our next number, and proceed, at once, to its pathology and therapeutics. In doing this, we shall place before our readers, at the opening of the summer (the season for those varieties of the Cholera which annually prevail in the United States) an abstract of the experience of the profession in Epidemic Cholera; which cannot fail to be useful, in case its remote cause, whatever it may be, should modify or aggravate the endemic, which, as usual, we may expect in June and July.

We shall arrange our selections under the following heads: 1. *Symtomatology.* 2. *Morbid Anatomy.* 3. *Pathology.* 4. *Treatment.* 5. *Prevention.*

1. Symptomatology.—No experienced physician of this country is ignorant, that Cholera Morbus and Cholera Infantum, frequently prove fatal, within 24 or 48 hours after the attack. Such cases, however, are few in number. If they were greatly multiplied, our summer endemic would, in reality, become identified with the terrific malady which is said, within the last 15 years, to have consigned to the tomb more than fifty millions of the inhabitants of Asia and Europe!

The most extended work on Epidemic Cholera which has fallen into our hands, is by Mr. Charles Searle, a Surgeon in the East India Company's service, and entitled "Cholera—its Nature, Cause and Treatment"—London, 1830. The author while resident in India, suffered a severe attack of the Epidemic, in his own person, and saw much of it in others. To the observations thus made he has added copious extracts from the reports of other British practitioners in that country, so that his book presents a digest of the observations and experience of a majority of those, who have seen more of this pestilential scourge, than all other physicians.

As a general description of the disease, we shall extract from the fourteenth and subsequent pages of Mr. Searle's book, that given by Mr. Orton and avouched by our author:—

"The attack of cholera is usually sudden and violent, but in a great majority of instances, not without some premonitory symptoms —it is frequently preceded by a simple diarrhœa, continuing several days, and still more commonly by other slight affections which are more characteristic of the disease; an extraordinary depression of spirits, and general uneasiness come on, attended by tremor, and sense of debility; giddiness and head-ache, and occasionally ringing in the ears, are also felt, particularly on rising from the recumbent posture, or making any sudden movement. Pains, resembling those which attend the accession of fever, are freqently felt in the limbs; the bowels are griped occasionally, and natural loose stools occur; and nausea comes on. The circulation, and temperature of the body are variously disturbed, but most commonly, the pulse is accelerated and weakened; the skin is moist, and colder than usual, to the hand of another.—These symptoms, or some of them, not unfrequently continue many hours, or even a day or two, without proceeding much farther, or exciting much attention.

In general, however, the severer affections quickly set in, or as he at the commencement observes, the attack is sudden and violent. Acute griping is felt; the stools become frequent and watery, and soon change to the conjee-water appearance; vomiting comes on, of the same mucous fluid appearance; copious sweat breaks out, and anxiety and debility rapidly increase; and the countenance assumes a peculiar shrunk ghastly appearance. It is usually during a fit of vomiting, that spasms of the muscles are first felt, they are almost invariably of the tonic kind, recurring in paroxysms, of the duration of a minute or two, and a tintervals of a few minutes; and attended with excruciating pain; they affect occasionally and in turns, the whole of the muscles of voluntary motion, but particularly those of the legs and feet: the abdominal muscles, and those of the chest are frequently affected, but not particularly so: great debility of the circulating system, very constantly attends the accession of spasms, or severe vomiting: I have frequently found, the pulse sink at once, on the first appearance of spasm in the muscles, from the natural state so as scarcely to be felt, or even disappear entirely from the wrist in an instant: and in such subjects as are not affected with spasms, this fatal failure of the circulation not unfrequently appears, with the first paroxysm of vomiting. The frequency of the pulse is very variable, in many instances it is rapid from the commencement, in others its frequency is little changed in the early stage; but in all, it becomes extremely quick as the disease advances.—The respiration from the first severe accession, is observed to be hurried and oppressed, and is frequently complained of. As the disease increases in violence, the colour of the whole surface changes to a livid hue, particularly round the eyes and at the

extremities. The surface is bathed in cold sweat; the hands and feet, and afterwards the whole body, rapidly grow cold.

A small number only of the symptoms of this disease, have yet been described, and it is necessary to return to the early stage, when the spasms, and other severe affections first set in; from this period, an extreme thirst invariably attends; and notwithstanding the coldness of the body, there is an ardent longing for great quantities of cold water; an acute pain is felt in the situation of the stomach, which has been generally and distinctly observed to be increased on pressure, and sometimes on inspiration. A sense of heat is likewise felt in the same situation, and frequently extending over the whole abdomen; which has been compared to the effects of burning embers, or a blister in the stomach. Great oppression, and sense of anxiety are also preferred to the præcordia; the secretion of urine, and of bile under the existence of the severer symptoms, is completely suppressed: the tongue is natural at first, but in the course of the disease, it becomes furred, and deficient of moisture; and dryness of the mouth and throat, is very generally complained of: the hands are sodden with cold sweats, shrivelled and shrunk, like those of a washerwoman after a day's labor, and frequently of a very dark blue colour: although the temperature of the body is greatly diminished, the patient is not sensible of it, on the contrary, he frequently complains of heat, and is incessantly throwing off the bed clothes; these movements are, however, more occasioned by an extreme restlessness and anxiety, which prevent his remaining an instant in the same position; it appears to be attended with such an extreme degree of suffering, as human nature cannot long support; and accordingly, we seldom find it of long duration: it is gradually relieved, or removed by stupor, and though these symptoms are of so opposite a nature, they are frequently present, in a very considerable degree at the same time: the patient feeling a constant inclination to dose, and waking every instant, tossing and groaning in a dreadful state of anxiety.

On the accession of the spasms, or, in those subjects in whom they do not appear, of the vomiting, the other symptoms above described, usually either make their appearance, or undergo a marked exacerbation. The disease at that period, seems to put on its most acute form, and the great struggle takes place.—It is quickly decided—after an uncertain continuance of this state, to which I cannot with truth, apply a term of greater precision, than a few hours, a remarkable change takes place, which might lead a practitioner unacquainted with the disease, to congratulate himself on having arrested the worst symptoms, and to form a favourable prognosis, even when death is approaching with rapid strides: the spasms, the vomiting, and the purging cease, usually about the same time. Whatever is taken into the stomach is retained, even though in large quantity; and clysters, not rejected as formerly. About this time likewise, the state of dozing and stupor which is described as above, appears, and considerably resembles natural sleep. But any favorable inference which may be drawn from these appearances, is quickly contradicted, by the

continued weakness of the circulation, the coldness and livid colour of the surface, and the cadaverous expression of the countenance.

The powers of life continue rapidly to fail—the pulse becomes quite lost at the wrist, and even at the humerus; the pulsation of the heart itself is felt extremely feeble; the eye is sunk back and fixed in its socket, the cornea becomes dull and glassy, or is covered with a tenacious film. From the shrinking and wasting of the features, the eyelids are rendered incapable of performing their office, and in the attempts to sleep, the eye is half open: deafness, preceded or accompanied by tinnitus aurium, is very common in this stage: false vision, blindness, and dilated pupil, are equally so; speech becomes difficult, and the voice grows hoarse, hollow, and scarcely intelligible, or entirely lost. The breath has been observed to be cold, "as if it came out of a lump of clay." The internal senses are occasionally observed to survive the other faculties; but more frequently they are absorbed by stupor. Respiration is short and laborious, and frequently stertor supervenes—after a further continuance of some hours, with various degrees of the preceding symptoms, death closes the scene; usually with little suffering.

If the termination is different, a favorable crisis occurs, which is almost invariably marked by sleep of unusual soundness; attended by warm perspiration, and light and natural respiration—the favorable change takes place, at all periods of the disease; but most frequently, before that morbid quiescence with its attendant symptoms, which have been noticed; for this state, is very commonly followed by death; on waking, the patient feels himself thoroughly relieved, and expresses his satisfaction in the strongest terms—at the same time an evacuation of bilious fœces, and urine generally takes place; and from this period, a considerable purging of black, green, or yellowish feculent matter arises. At this time also, other signs of increased action manifest themselves: the pulse rises above the natural standard, both in frequency and volume; the skin grows rather hot, though moist, and frequently there is a copious perspiration.

The Bengal Medical Board have given a luminous description of this stage of excitement or reaction, which in a greater or less degree, appears always to follow the favorable crisis: they have observed it rising to a great height, assuming all the characters of the idiopathic bilious fevers of the country, and occasionally becoming fatal. This, however, does not appear to have been commonly the case on the other establishments—a slight and salutary degree of reaction only, has usually followed, which has quickly subsided; a rapid convalescence has generally ensued, and the strength and looks have been regained, almost as quickly as they were lost.

A still more rapid and violent description of the disease has frequently been observed, particularly in natives:—in a state of health when the patient is going about his usual occupations, the sensorium is in an instant invaded, by violent vertigo and ringing in the ears, together with deafness, and dimness of sight. The contents of the bowels are discharged, much diluted, at one very large evacuation;

after which, the white stools characteristic of the disease immediately appear, vomiting and other violent symptoms at the same time set in, and the most extreme debility, and even death is produced in the course of half an hour. The first appearance of the disease in His Majesty's 34th Regiment, was marked by a single case, which was fatal. On the two following days no attack was observed; and the alarm which was excited, had began to subside: but on the day succeeding, thirty-seven men were carried in general nearly lifeless to hospital, between morning and midnight: in that short space fifteen of them died. It would appear, that when the spasms are very violent and general, and the retching extremely distressing, that purging is little remarkable, and frequently altogether absent.

Another very striking set of features of this proteiform disease still remains to be delineated; and although I have deferred, for the sake of perspicuity, the mention of them until now, they are amongst the most important, and most constant in occurrence.—The burning pain in the stomach is increased on pressure, and the common circumstance of the ingesta being instantly rejected, are indicative of inflammation of that organ; and the appearances on dissection fully prove, that this affection takes place, perhaps in every instance; for, whenever the disease has been of sufficiently long duration, to allow time for appearances of inflammation to be formed, they are invariably found, not only in the stomach, but in the intestines. In many instances, we have the most convincing proofs during life, of the existence of inflammatory action, in different parts of the frame: if the extreme depression of all the powers of life already described, and particularly if the state of torpor, which follows the morbid cessation of vomiting, purging, and spasm, is not quickly concluded by death, or natural sleep, the temperature from being far below the natural standard, rises above it. If there is any vigor of the circulation left, the heat extends over the whole surface, and the moisture disappears; but if the powers of life are unequal to this, the trunk only becomes hot, the extremities continuing quite cold, and moist. Under these circumstances, the pulse is also extremely quick, 140 and upwards, sharp, and occasionally possessing a peculiar irritated thrill, which is strongly expressive of inflammation of vital parts. The tongue grows furred and dry, and in combination with these symptoms, many local appearances occur, leading to the same conclusion.—In some cases the vomiting returns, and continues very frequent, the stomach rejecting every thing which is taken in, for several days: in others, there is fixed pain, and soreness all over the abdomen; and if the inflammation attacks chiefly the brain, there is occasionally muttering delirium, but more frequently, coma, with deep and stertorous breathing, and suffusion of the conjunctiva, which quickly terminate in death. In cases which have lingered on for some time, in any of these states, and even when the topical symptoms are scarcely at all evident, the appearances of inflammation on dissection are strongly marked, and quite sufficient to account for death.

This inflammatory stage frequently lasts several, even many days.

If the depression of the vis vitæ is extreme, the secretions of bile and urine, and perhaps nearly all the secretions, continue suppressed throughout. Under other circumstances, I have observed, small quantities of high colored urine frequently passed; and black or green stools occur, without a favorable termination. On the commencement of this stage, the pulse usually becomes rather more distinct; but it is more from increased sharpness, than fullness: and we are presented with the remarkable phenomena, of acute inflammation, and extreme debility prevailing at the same time, and indicating opposite modes of treatment.

On the subject of Inflammatory Symptoms, Mr. Searle makes the following additional remarks:—

My own experience has also been very conclusive with regard to the sthenic form of the disease.—I have found a very considerable number of cases, exhibiting singly or in partial combination, every possible degree, and almost every kind of increased action.—Spasms, such as not to fall short of the highest degree of tetanus; retching, and spasms of the intestines equalling colica pictonum; very full, hard, and quick pulse; hot skin and flushed surface;—evacuations of bile, both by vomiting and stool, from the commencement of the attack.—And finally, I have seen some of these cases passing into the low form of the disease; the circulation passing suddenly, from extreme strength to extreme weakness; the skin from being hot and dry, becoming deadly cold, and bathed in sweat; and the increased flow of bile, succeeded by white stools, and vomiting, clearly indicating the total suppression of that secretion.—The inference from these facts is plain; however opposite these two forms of the disease may appear, there is no essential or generic difference between them.

The manner in which Mr. S. presents the following remarks, leaves it uncertain whether they are from his own or the pen of Mr. Orton:—

As it has been said, that the preponderance of increased action marks a milder form of the disease, and that the European constitution more frequently exhibits that phenomenon, than that of the native, it follows, that the disease should be less fatal in the former, than in the latter class of persons, which experience proves to be the case.

In fact if would appear, that increased action in general, whether arising from a smaller degree of morbific cause, or greater vigour in the system, is equally indicative of less disease. It is evident, that the quantum of disease in any case, must be, not only in proportion to the quantity of external cause, but in the inverse proportion to the power of resistance against it, inherent in the frame. The most vigorous and healthy, are incontestably the least subject to this epidemic,

or when attacked, to its more dangerous forms; and it is probable on the foregoing principles, that these previous states of the system, by affording resistance to the morbific influence, reduce the disease to its milder form, and thus chiefly give rise to the same phenomena, as those which attend the diminution of the great cause of the epidemic.

It appears, therefore, that the great and ordinary diversities in the phenomena of cholera, which arise from unusually increased or diminished action, are principally referrible to different degrees of disease."

That our readers may compare the phenomena of this disease, in climates so opposite, as those of Bengal and Russia, we shall present them with its symptomatology in the latter country, as given by medical gentlemen sent thither by the French, Prussian and English governments; for the two first of which we are indebted to the documents recently published by Congress; for the last, to the distinguished Med. Chir. Rev. for January 1832.

Dr. Perron the French agent writes as follows:—

Ordinary course of the Asiatic Cholera.

We may admit of three stages in this plague. The first is that of its inferior degree, of its imperfect development, or only of the *precursors*. The second embraces its ordinary development. And the third comprehends cases, in which the most alarming symptoms of the former stage acquire the greatest degree of intensity. The first period is, unfortunately, too often neglected, at the great peril of the patient, because the symptoms are not then sufficiently alarming to give uneasiness; they are not even considered as belonging to cholera, but as the consequence of a simple gastric affection. The symptoms belonging to this first stage, are a sensation of uneasiness, either with, or without pain in the pit of the stomach, the want or loss of appetite, a great heaviness in the lower part of the abdomen, with a disposition to diarrhea or a diarrhea partly developed and which may precede the attack for some time; afterwards some nausea, and even sometimes slight vomiting, and weakness in the limbs, head-ache, alternate shivering, and slight heat. These symptoms are not always united; sometimes one, and sometimes the other, predominates. During the epidemic, they are found more or less in every body; they last several days, disappear and return, and often have no other effect. They must then be regarded as an imperfect development of the disease.

The second stage is that in which the malady presents itself in its most striking characteristics. Here too, the symptoms are not always the same in all individuals; but the following are generally observed: frequent and weakening evacuations, both by vomiting and purging of aqueous liquids, greyish, like rice water, commonly untinged with

bile, inodorous, and connected with some particles of mucus. At the same time, respiration becomes more and more difficult; and this state is followed by excrutiating pain, stifling and constriction in the region of the heart, interrupted by sighs. In the lower part of the abdomen, the patient experiences, alternately, pains accompanied with heat; the disposition to vomit and purge augments, whilst the urine ceases entirely. Thirst becomes unquenchable, and with it, a strongly marked desire of taking cold drink, and chiefly water, to calm the burning sensation in the pit of the stomach. Restlessness augments to such a degree, that the patient hardly remains more than a single moment in the same position. The tongue becomes flabby, large, bluish, and even blue; afterwards it grows cold as well as the breath. The extremities likewise soon grow cold, bluish, then blue, and are wrinkled as if they had been for a long time in warm water. The patient experiences at first pains and heart burnings, to which succeed very severe cramps, chiefly in the calf of the legs, in the joints of the toes and fingers: they are afterwards felt in the thighs; in the abdomen, and in the inferior part of the stomach. The pulse lowers, and becomes almost imperceptible; the eyes are blood-shot, dim, hollow, and surrounded by a dark circle. The face, which is also blue, contracts, and expresses both the increase of weakness and of the collapse, as well as the greatest sadness, and the anguish of an imminent death. The blood drawn from the veins is black, and so thick, that it runs with great difficulty, and is cold to the touch.

The third stage is that of a new degree of intensity in all or in a part of the symptoms detailed above, or there is a deceitful appearance of amelioration: that is, the evacuations and the cramps cease, and the patient no longer feels any pain, but the skin remains as cold as marble, the respiration becomes more and more weak, and there remains no trace of pulse.

The indications of amendment, consist in the diminishing of the cold of the body and extremities, in the reappearance of the pulse, however feeble at first; in the gradually ceasing of the alvine evacuations and vomiting, and chiefly in the reappearance of the urine.

The patient recovers sometimes very fast, that is in the course of a few days; but very often too, several weeks are necessary to his entire restoration. In short, it is also in that stage that the disease, by a reaction in the system, changes into a febrile malady, accompanied by a strong affection of the brains, or of the lower part of the abdomen, which under the appearance of a nervous typhus, still presents a great deal of danger.

The progress of the Asiatic cholera is so rapid, that the fate of the patient is commonly decided in a few hours; some die after four, seven, ten, or twelve hours; it is seldom that cholera lasts more than two days.

Dr. Albers, the head of the Prussian Commission, after observing the disease in Moscow, gives the following summary of its symptoms:—

Symptoms of the Disease.

General uneasiness; violent head-ache and giddiness; great languor; oppression at the chest; pain at the pit of the stomrch and at the sides; a very weak pulse, and frequent vomitings, first of undigested food, and then of a watery fluid mixed with phlegm; frequent purging; severe pains, which make the patient roll about and scream; cessation, or very scanty secretion of urine; excessive thirst; cramp in the legs beginning at the toes, and by degrees reaching the body; voice feeble and hoarse; the eyes dull and sunk in the head; the features changed, and like those of a corpse; coldness; contraction and blueish tinge of the extremities; a coldness over the whole body; the lips and tongue become blue; a cold and clammy perspiration. The vomiting and purging soon exhaust the strength of the patient. The spasms become greater, attacking successively, the most vital parts. The pulse ceases, the beating of the breast becomes scarcely sensible, and the patient, after having suffered the most horrible martyrdom, dies quietly, having a few minutes ease just before his end. The duration of the malady is, generally speaking, from twenty-four to twenty-eight hours; but sometimes its course is still more rapid, and sometimes slower.

Dr. Hamett, Naval Surgeon, and one of the Commissioners sent by the British government to Russia, gives the subjoined description of the disease as observed at Dantzick, in Prussia:

Passing over subordinate features of the epidemic, I shall limit my descriptions here to three principal forms of it; viz.

1. The rapid and severe cases of fatal cholera.
2. The protracted cases of fatal cholera; and
3. Those less severe, which proved favourable.

1. In most rapid and severe cases of fatal cholera, the patient was suddenly seized with sickness or pain at stomach, occasional pain, or feeling of weight and uneasiness in the hypochondria, the right hypochondrium especially; giddiness, prostration, great thirst and craving for cold drinks, a cold sweat that quickly became colliquative and clammy; at times coldness alone, at others coldness and dampishness of the body, but never with shivering; the pulse was frequent but not hard, and soon became exceedingly reduced; the hands and features somewhat shrunk: the tongue was foul, unnaturally moist, and occasionally tremulous: the voice subdued; the eyes heavy and suffused, and the sight dim. These primary symptoms were in general either accompanied, or immediately followed, by retching and vomiting, and a peculiar watery diarrhœa, which often, however, proved irregular in the order of attack, occasionally even with respect to each other, and oftentimes severe, in hot, close, and electrical weather especially; griping pains in the abdomen; painful contraction of the muscles at the umbilicus; suppression of the secretion of urine, and occasional pain in the region of the bladder. Cramps in general followed the

retching and vomiting, and in most instances invaded the calves of the legs at first; in their attacks of other parts of the extremities, they proved irregular, seizing first the fore-arms, calves and fore-arms, hand and fingers, toes and feet, or hands, feet, and calves, in different instances indiscriminately; occasionally they mounted up the thighs, but seldom attacked the trunk. Men rarely escaped them, women frequently, and children generally.

The vomited matter in general consisted of undigested food at first, sometimes partially tinged with yellowish green; of fluid ingesta, also occasionally imbued with greenish coloured matter, and partly of slime and mucus. Often, however, it consisted of undigested food, or of fluid ingesta alone, without being in any wise so imbued. In the retching and vomiting which followed, the fluids taken continued to be rejected with a little greenish coloured matter, with or without more slime or mucus. The dejections, were always watery; sometimes as if coloured with feculent matter; in general they were either colourless, somewhat like whey or had the appearance of rice-water, barley-water, occasionally somewhat dirty, or with an avanaceous sediment, after being shaken in water.

After this first advance of the disease, the following symptoms rapidly supervened; viz. increasing oppression at the heart, and short hurried and laborious breathing, ending in complete oppression and weight at the *præcordia;* tossing of the head about; anxious restlessness depicted, often with terror, in the countenance, which in general was of a dark brown, wan, or leaden hue, according to the complexion; insatiable thirst, with incessant craving for cold drinks, and the voice raucous and depressed. The retching and vomiting, and diarrhœa, with occasional *tormina* and cramps, at first only intermitting at short intervals, subsided either abruptly, or gradually as vital exhaustion advanced; the pulse at the wrist, if not extinct—which it was in most rapid and severe instances—was accelerated to the utmost in frequency, and barely felt; the surface of the body quite cold, damp, and clammy, and the feet and insteps marked with bluish streaks and patches; the tongue cool or cold, and in some instances livid at the tip and edges; breath cool or cold; lips blue; nose sometimes bluish; voice below the breath, or gone; cheeks and eyes now quite sunk; pupils at times partly or completely dilated; eyelids half-closed, and encircled with livid rings; the parts of the conjunctivæ exposed being much the same in appearance as after death. Amid this complicated suffering, the patient was not insensible until just before dissolution, which ensued after some faint convulsive sobs, generally within from eighteen to seventy-two, and occasionally within from eight to eighteen hours after the first attack.

2. In the protracted cases of fatal cholera, which have been few in number compared to the rapid cases, the following febrile symptoms have been observed more or less, in different patients after the indefinite period of the first stage: marked congestion, with pain in the head, deafness, humming noise in the ears, heavy stupor, continual drowsiness, partial ravings; a dark flushed, brownish yellow, squalid

or cadaverous countenance; a dark brownish clammy or furred tongue; dark sordes about the teeth and lips; eyes heavy and suffused, or dry and parched, often with eventual dilatation of one or both pupils; a hot or cold clammy skin; pulse frequent, with febrile action, or very small; with pain or soreness of the abdomen, increased on pressure—and occasional tenesmus. With these symptoms, the excretions, as may be readily conceived, were scanty and vitiated. The stools dark, dark-green,—very fetid, and the urine in general dark coloured. Delirium generally took place in these before death, and they died within from three or four to five or seven days, or later, after the first attack; more generally on the fifth.

These modifications of particular symptoms, bordering on each other, and referring to individual parts, depend, I need scarcely add, not only on differences in constitution, but, in a certain degree, on the mode of treatment at the commencement, and even on the state of the locality in which the patients happened to be placed.

3. In the cases less severe,—and as I have observed,—of less unhealthy persons, in whom the natural powers* of the constitution were calculated to withstand the effects of the shock on the system, giddiness, retching and vomiting, watery diarrhœa, occasional griping pains in the abdomen, cramps, occasional painful contraction of the muscles at the umbilicus, thirst, and suppression of the secretion of urine, took place, and proved occasionally severe; but the congestion in the head, and oppression in the chest were certainly less marked; the pulse, although barely felt, was rarely entirely suppressed; coldness of the body, the cold clammy sweat, and other bad symptoms were not marked in any great degree. The leading symptoms gradually, or abruptly disappeared; and more or less of febrile re-action ensued, generally within from eighteen to twenty-four or thirty-six hours, or more, after the commencement of the disease, about which time hiccups, always a favourable sign, were occasionally noticed, and not before. The exact period of the return of the urine was not certain, being sometimes before, at others after the first appearance of re-action: it was dark or high-coloured, voided in small quantittes with occasional difficulty, and frequently attended with some pain in the region of the bladder. The return of urine, though an important symptom, was not always decisive of a favourable result; on the contrary, hiccup, which however was not always observed, almost invariably indicated recovery. The dejections immediately after the commencement of re-action were fluid, scanty, and dark-coloured, as if imbued with blackish feculent matter; but they very soon became successively brownish, and naturally bilious and feculent. Indeed, in the majority of cases of this description, the secretions and excretions soon got into play, and restoration was more or less rapid.

Partial stupor, with little or no delirium, more commonly occurred in children, and spare aged persons free from previous organic, or

*This is certainly true; and yet a woman, named Eliza Brandt, thirty-six years of age, affected with tubercles and vomicæ, had, in July last, this severe form of cholera, which soon gave way to all the hectic symptoms of her complaint.

general complaint, and gave grounds for a favourabte prognosis: they seemed tranquil, and as if naturally asleep. They were in general affected with *œdema*, in the feet, and more or less in the legs after convalescence had commenced. *Œdema* also occurred in others after the disease, but not generally. In pregnancy, abortion invariably took place, and was always a critical symptom, death or a favourable change soon following.

From the description above given of the rapid and severe cases of fatal cholera in Danzig, its similarity to the Indian cholera appears manifest; and from the descriptions of fevers supervening after the first stage, as given in the second and third forms, its deviation from the Indian epidemic, in which those fevers do not generally supervene, also appears evident. The greater severity in general, which has been found of the vomiting, diarrhœa, griping pains in the bowels, and painful contraction of the muscles at the umbilicus, in the epidemic in India, compared to that in Danzig, is easily explained by the well-known influence of the climate in India on the whole system, and digestive canal in particular.—*Med. Chir. Rev. Jan.* 1822.

II. Morbid Anatomy. Mr. Orton, as quoted by Mr. Searle give the following account of the morbid appearances presented after death, in India:

The morbid apearances which I have observed on dissection, in a great number of instances in this disease, have been pretty uniformly as follows:—

A dark blue, or livid color of the surface of the body, existing in various degrees, in different parts of different subjects, but most remarkable at the extremities. It appeared to prevail most in the more robust and sanguineous subjects, and in the more rapid cases. Blood, taken from both the venous and arterial systems, was found to be of a very unusually dark, and purplish color. The internal organs in general, were found much gorged with blood—this was particularly remarked in the veins of the mesentery and stomach, and in the lungs.

Many extensive patches of a crimson color, on the stomach, usually confined in a great measure, to its inner coats; similar appearances in the intestines, most remarkable in their inner surface, but appearing externally in a greater degree than in the stomach—they were much more evident in the small,, than in the large intestines.

The stomach, containing the ingesta which had been given, for some hours before death in considerable quantity, and little altered, either in appearance or smell: calomel was frequently found at the bottom of the fluid contents, and adhering at various places to the mucous coat. The intestines were in a great measure empty; their contents were usually free from the slightest tinge of bile, and consisted chiefly, of a dirty whitish mucus, resembling conjee or thick barley water, slightly turbid with milk: large portions of them were frequently

found contracted, so as with difficulty to admit the finger into their cavities, particularly of the large intestines. The gall bladder contained the natural quantity of bile, of no very remarkable appearance. The gall ducts were found pervious; the bile flowing readily into the duodenum on pressure being made on the gall bladder.

The urinary bladder was almost invariably found contracted to the size of a hen's egg; without containing a drop of urine.

The veins of the brain were much distended with black blood: the minute arteries of the dura mater, and membranes of the brain were frequentty found injected. I am informed that actual extravasation of blood, in considerable quantities, has in some instances, been found on the surface of the brain.

Let us compare these with the appearances, on dissection, in the North of Europe. Mr. Hamett examined 21 subjects, of various ages, some of which died from sudden and violent attacks—others from protracted illness, and has reported the morbid anatomy as follows:—

Many of the characteristic appearances after death will depend, in a great measure, upon the number of hours elapsed before the body is opened; the later the examination, the less truly characteristic, so far, are the appearances. Those I have examined were in general opened within, or about, twelve hours after death. Bodies at this season ought, however, to be examined as soon as possible, and always within at least six hours, if it can be done with propriety.

Of all the morbid effects in appearance, which I have observed after death in the bodies of persons who died of cholera in Danzig, the most characteristic, perhaps, has been the great congestion of blood in the sinus venosus and right auricle of the heart, and in the veins throughout the whole body; the next is the invariable contraction of the bladder; and another, which, although not apparently constant after death from this disease, is seldom or never to be met with after death from others—namely, slight spasmodic contractions, or movements, if they may be so called, in the muscular fibres here and there in the body, and more especially in the face and extremities, not only immediately, but some time after dissolution. These resemble Galvanic effects produced in the body after death.

The veins and right auricle in particular of the heart, were full of black blood; some was always found in the left auricle; while very soft imperfectly coagulated lumps were found either within the right ventricle, or within the aorta, either immediately at its commencement, or down below its curvature. These lumps were invariably as black as the blood found in the veins and right auricle; the thoracic aorta uniformly contained some black blood, but was never full, like the veins; the abdominal aorta also contained a little, but very little; the right ventricle had always a small quantity of black blood, the left ventricle a very little. The pericardium seemed more or less flaccid

and very often contained a quantity of dark brown serous fluid. The parietes of the heart in general seemed soft, and I fancied, in a few instances, that those of the left auricle seemed thickened; this, however, remains to be confirmed or refuted by subsequent examinations. I occasionally observed morbid blackish, or bluish, and, in one instance, whitish spots on the external surface of the heart.—The lungs were in general much more bluishly speckled than in most other cases,—almost always collapsed, but dense from black blood—not as in hepatization of the lungs—frothy, black blood freely oosing from incisions made into them. The pleura, in its reflections throughout, from the anterior to the posterior mediastinum, and over the upper surface of the diaphragm, seemed in general of a dark dull red. The trachea, bronchia, and larynx contained a little frothy mucus, and were otherwise wet with a compound of serous and clammy fluid; but the internal mucous surface exhibited no vascular appearance. In general there was a considerable quantity of clammy, serous fluid found effused in the chest; all was wet, exceedingly soft, and clammy, more so than I have been used to see after death from other diseases. The vena azygos was invariably full of black blood. The thoracic duct was in general empty, and seemed natural.

On detaching the calvaria from the dura mater, the latter was, in most instances, spotted all over with the black blood that instantly issued from the torn vessels, especially along the lines of the sutures, where they are most numerous, in the younger subjects particularly. The external surface was mostly of a dark bluish colour, and dry, but clammy feel. The internal surface of the dura mater, and its processes, or continuations, were not marked by any peculiarity, except, perhaps, in the appearances being more opaque, and feeling more clammy than usual. The tunica arachnoidea wrs in general of a wheyey, glossy colour, and somewhat clammy to the touch. Between this membrane and the pia mater, and more especially in the lower part of the cerebellum, there was occasional effusion or filtration of serous fluid; and in all instances there was considerable effusion of this fluid between the pia mater and the cerebrum and cerebellum both; in most instances it was found in the ventricles, in the fossulæ at the basis of the cranium; and, indeed, wherever this effusion between the tunica arachnoidea and pia mater in parts of the cerebellum, and the pia mater and the brain itself at large, was observed, it was also invariably observed in the same relative situations in the spinal marrow of those bodies in which the spine was examined—which were fifteen in number. In other instances too, where there was effusion in the brain, we had only to elevate the pelvis and loins in order to see serous fluid issue forth from the spine through the occipital foramen. There was always a considerable quantity of thin black blood in the sinuses, in the inferior more so particularly. In all cases the congestion of black blood in the veins of the pia mater, in the venæ Galeni, and choroid plexuses, was great, accompanied with varicose dilatation of these vessels; and likewise the same relative congestion of black blood in the veins of the pia mater, in the spine,

especially in the posterior parts of it, where the vessels being larger and more numerous, varicose dilatation was more conspicuous. The medullary substance of the brain seemed in some instances much softer than usual, but it might have been owing, in part, to the interval elapsed during hot weather between death and the time of examination. In some instances black spots were visible on incisions into the brain; at times, too, the cineritious and medullary substance both seemed relatively altered in appearance as well as consistence.—The state of the spinal marrow corresponded in all cases exactly with that of the brain.

After what has been said and implied on the venous congestion in the brain, spinal marrow, and thorax, it will be readily conceived in the abdomen, in which the large as well as small vessels are still more numerous and varied. The vena cava abdominalis and vena portæ, with the splenic and superior mesenteric trunks, and, in short, all their large tributary branches, invariably contained a considerable quantity of black blood: they seemed at times as if full of it, while the mesenteric veins always exhibited a characteristic black or bluish arborescent appearance throughout. The gall-bladder was not only of a deep green externally, but, in some instances, from a deep green to a bottle-green, and occasionally tinged here and there with yellow; and was in general distended, and full, or nearly full of fluid, generally black, and sometimes as if a little of yellow or brownish yellow bile had been mixed up in it. The internal or villous coat of the gall-bladder was in general between a dirty yellow-brown and brownish yellow—in a few instances it was a natural bilious yellow. The liver was invariably in a state of *engorgement* from the black blood, which, in all states of it, freely oozed out from the hepatic veins in particular on incisions into its substance: it was in general discolored, even after sponging the membrane covering it, and I think most in the younger subjects, and those who had not suffered from previous affection of it. The spleen was also in a state of *engorgement*, and of a black purple colour—and this independently of any alteration in its structure as referrible to other morbid states. The kidneys, notwithstanding the suppressed secretion of urine, did not exhibit any peculiar change in general, further than that of venous congestion. The same was observed in the pancreas. It is not easy to say whether the ductus communis choledochus, and immediate biliary vessels were in general contracted or not: sometimes I found greenish or vitiated bile at the opening of it into the duodenum, and sometimes I did not. I often found, in protracted cases particularly, the external parts of the duodenum and colon in contact with the gall-bladder, or near it, completely discolored with yellow bile.—With respect to the stomach and intestines generally, I cannot say that I observed any effects of the disease beyond what is referrible to congestion of blood in the veins, and what might be attributed to the sedative nature of disease. The mucous coat of the stomach, in particular, and parts of the colon, seemed, in some instances, soft, as if half macerated, indeed, the intestines generally seemed soft, as if the internal mucous and villous

coat could be separated from the muscular coat. The small intestines, I mean the jejunum and ileum chiefly, were more commonly of a dark dull red, or rather of a dark dull slate colour, on their external peritoneal coat, without any positive vascular appearance; sometimes of a pale slate colour, with vascular injection, or vascular congestion more marked; while, on the internal surface, they did not exhibit the same colour generally—still, in some instances, there was in some parts a modified appearance of it; while in various parts in others there was a vascular appearance of the internal mucous and villous coat, though by no means corresponding to that externally. Besides the pale slate or leaden colour, and the dark red slate colour, I have observed a vascular dark red also—facts which will account for that tenderness or pain on pressure of the abdomen, so marked in cholera, especially in protracted fatal cases. In one instance of a young woman, who had died of true and rapid cholera, the general external appearance of the small intestines was of a pale or light rosaceous hue, while that of the colon was quite pale. The mucous membrane throughout the whole canal was whitish, and as if half macerated. Whether the brown patches, which are at times observed here and there on the internal surface of the stomach and intestines, are effects of the disease, or of previous chronic inflamation, is in some instances not easy to determine. The stomach and intestines, as might be expected, mechanically retained the last fluid ingesta; for latterly, what came away, did so involuntarily. There were the remains of former mucus, more or less, throughout the whole digestive canal; and in true, rapid, and fatal cholera, little or no remains of feculent matter, except in its usual receptacles, namely, the commencement of the colon, the cæcum, caput. in the transverse arch occasionally over across it, and in the sigmoid flexure, in which, in some instances, scanty portions of it were found. The mucous follicles in the internal membrane of the colon at its commencement, and Peyer's glands in the end of the ileum, were occasioually found in large compact patches, more or less continuous, distinct, elevated and somewhat indurated. Brunner's glands, as they are called, were not so observed in the duodenum. The colon externally, as well as the duodenum, particularly at its upper curvative, was discolored at the upper part of the ascending portion, and beyond in the greater part of the transverse arch, but in the other parts it was of a pale or pale lead colour. The peritoneum, in all its detached reflections, was more or less opaque, having lost its shining, glossy colour more than in most other congestive and sedative diseases of the system attended with fever, more even than in the compounds of remittent and intermittent fevers in tropical climates, with marsh miasmata, in which venous congestion is so very notorious. In protracted fatal cases I occasionally observed chronic discoloration here and there on the internal surface of the stomach and intestines—in some instances of a dark brown, in others of a dark brown red, without being exactly vascular in appearance: at times vascular spots and patches were observed in some parts of the intestines, and the dark brown, and dark brown red in others; they were

generally in the colon, the commencement above and below particularly, in the transvers arch, and sigmoid flexure. I observed parts of the colon in a gangrenous state, and chronic inflamation of the whole of the ileum, in one subject. In several instances the lumbricoid ascarides were found in the intestines.—In some instances the commencement of the thoracic duct or receptaculum chyli seemed quite close and contracted.—The invariable close contraction of the bladder, I have not omitted to mention; it was mostly lined with a little whitish mucous.—*Med. Chir. Rev. Jan.* 1832.

As some patients expire in a state of asphyxia or collapse, within a few hours after the attack, while others live for several days, and die from inflammation; it need not surprise us, that a summary of the morbid appearances shonld present much diversity.

III. Pathology.—Whatever may be the cause of Cholera, its fatal energy must be admitted. The suddenness of the attack; the extreme prostration of the vital forces; the universal overthrow of the functions; the speedy termination in death; and the accumulation of blood in the great central organs, as found after that event, manifest the impress of a most desolating poison. On what part of the living body this agent makes its onset, remains to be discovered. 1. Like electricity it may penetrate our organs, and by its actual presence exert a deleterious influence. 2. It may stamp itself on the dermoid or mucous surfaces, or both, and communicate its baleful influence to the internal parts, through the medium of the nervous system. 3. It may be absorbed through the lungs into the blood, and circulate as a virus; or changing the composition of that fluid, render *it* a poison to the organs which it should sustain. In whichever of these modes it makes its invasion, no part of the body can be said to escape the consequences of its mortal impress; for the symptoms denote that every organ is scathed, though not perhaps in an equal degree.

In reference to our vital properties, is it a stimulant, a sedative, or an irritant? The phenomena which follow its application, may answer this question. They are evidently not those of increased excitement; but the reverse. The activity of the

various organs is reduced, and at the same time perverted. The noxious agent is obviously both sedative and irritating. The great function of innervation is almost suspended; and the remnant of sensibility, both animal and organic, altered; the equilibrium of the circulation, as an inevitable consequence, is broken up;—the enfeebled heart can no longer propel the blood to the more distant viscera, the muscles and the skin;—the vessels equally fail in their co-operation, and the vital fluid undecarbonized and impure, stagnates in the great vessels, and the portal and pulmonary circles, in the vena azygos, the spinal marrow, and the brain. Thus the universal and governing functions of innervation and circulation, are deeply smitten and deranged; the læsions they have suffered, reciprocally promote each other; and as every other function is subordinate to these, so every other is of course reduced and perverted. That of the lungs is arrested till the little blood which the organ transmits, is sometimes found of a black color in the aortic ramifications during life; the secretion of bile is nearly, often quite, suspended; the bladder is contracted from deficiency of urine; the skin is dry, or bathed in the kind of exhalation which, in most fatal diseases, precedes death; the healthy mucus of the gastro-enteritic membrane, is replaced by a sero-mucous exhalation resembling barley-water; the calorific function is reduced; to the point of actual suspension in the limbs, which during life sink to the temperature of the surrounding bodies; finally, the contractions of many parts of the muscular system—those of respiration, of the extremities, and of the alimentary tube, become morbidly excited, as in sycope from loss of blood, or hyper-emesis from tartrate of antimony. The various excreta of the blood, including two-thirds of the carbon exhaled in respiration, being retained, contribute to the impurity of that fluid; so that the central organs are not merely engorged, but engorged with a vitiated blood. This contributes to sink still lower their vital powers, already reduced by the direct action of the remote cause, and the patient frequently dies in as short a time, as if a solution of arsenic or antimony had been injected into his veins.

If he survive the stage of prostration, a partial and irregular

reaction commences. Inflammations in various parts—chiefly the membranes of the brain and alimentary canal, are set up; while other parts remain engorged with black blood, and inactive. A hot stage ensues, and the symptoms of a typhus gravior are developed. If the patient were previously vigorous, and of a sanguine temperament, the inflammatory symptoms may even run high. Thus the succession of morbid actions is that of malignant fever; and a paroxysm of one of the congestive intermittents, which occasionally scourge certain districts in the western country, is the true prototype of Epidemic Cholera. The chief difference between the two maladies consists—first, in the tendency of the former, to repeat itself in paroxysms; and secondly, in the vomiting and diarrhœa; accompanying the latter; which, however, are not always present, and to a greater or less degree often show themselves in malignant intermittents.

IV. Treatment.—Much has been said, especially in the non-professional journals, of the opposite methods of treatment which have been pursued in Epidemic Cholera; but the contrariety is more apparent than real. The ends in view have generally been the same, but the means adopted have been various, and the disease has often been cured by such as seemed to be opposite in their effects. Thus, different cases have yielded to blood-letting, emetics, opium, or external stimulants, separately employed; while others have been successfully treated by the whole combined.

The desideratum in the treatment, is a medicine, which, by a direct operation, would restore the nervous system to the state which preceded the action of the poison; but it would be eutopian to expect such an antidote. Meantime we can only seek to correct its effects. In contemplating these by the light of the symptoms and appearances after death, there is room for some diversity of opinion on the indications to be fulfilled; and no *methodus medendi*, can, perhaps, be laid down at the present time, against which plausible exceptions in theory, and still more formidable objections in practice, might not be raised.

In malignant cases of Epidemic Cholera, the great indications to be fulfilled are—1. To re-excite the activity of the nervous system. 2. To equalize the circulation, and remove internal congestions. 3. To restore the secretions that are suspended, and improve the condition of those which are perverted. 4. To allay spasms. 5. To moderate the subsequent inflammation and fever. In different cases, different indications predominate, and hence the variety in the treatment, whenever it is not purely empyrical. In proceeding to say something of the means of fulfilling these indications, we are not very clear as to the best method to be pursued. If any one of them be accomplished, the malady is vanquished. Thus if the circulation be equalized, the secretions will be restored; and, if the function of innervation can be repaired, the circulation and secretions will improve, and the spasms abate. Several therapeutic agents respectively accomplish two or more of these objects, at the same time; and hence it may, perhaps, be best to treat of them under separate heads.

1. Bloodletting, Cupping and Leeching.—To bleed a patient who cannot be raised from his pillow without fainting, whose pulse is nearly imperceptible, whose skin is cold, and extremities shrunk up to half their ordinary size, would at first view, seem rash and unwarrantable. But experience, which in medicine can grant warrants for any procedure, has sanctioned the use of the lancet even when all these and other symptoms of extreme prostration, are present. To be effectual, or even safe, the blood should be drawn, if possible, in the first hour of the disease. The quantity to be taken must vary with the effect. It generally flows with difficulty, often *guttatim*, and sometimes not at all, though large veins be opened. In every desperate case, recourse should be had to the jugulars, from which blood will flow when it cannot be elicited from the arms; and, flowing, must contribute more to the relief of the oppressed brain, than when drawn from the extremities. When the loss of a few ounces is productive of still greater debility, the malignity and danger are extreme, and the operation must be terminated. While, conversely, if the blood flow readily,

the pulse rise, and no tendency to fainting manifest itself, the prospect is auspicious, and a liberal quantity should be taken. In this case, the powers of the system are less deeply smitten, and the hope of recovery proportionally greater. Of course, blood is not drawn in this stage of the disease and under the symptoms just described, for the cure of inflammation, for none as yet exists; but to diminish the plethora of the great organs, especially the brain, spinal marrow, lungs and heart. That the loss of eight or ten ounces should contribute, perceptibly to this effect, seems rather incredible; but the evidence is conclusive. The number of bloodlettings must be decided by the circumstances of each case. The stage of prostration is generally too brief to admit of many repetitions, and in most cases, a single venesection suffices. The following are the remarks of Dr. Lefevre in reference to this remedy. They were made at St. Petersburgh. We extract from the M. C. Rev.

Bleeding from the arm in the first stage, when the pulse is full and the temperature not reduced, is often sufficient to cut short the disease. The quantity of blood to be drawn should be but small; eight ounces will be sufficient to allow the remainder to circulate more freely and relieve the heart, and this will not too much exhaust the patient.

The blood is generally thicker than usual, highly carbonized, and forms a loose coagulum. I do not know if the blood of Cholera patients has been analyzed during the present epidemic. The patient asually feels immediate relief, particularly where the head has been much affected. He should be bled in the horizontal posture, and remain quiet for some time afterwards. The operation of medicines is generally much facilitated by a small bleeding.

The absence of the pulse is no prohibition to the use of the lancet, unless this is accompanied by other symptoms of great debility, and the system has been exhausted by previous evacuations, and the surface is covered with a cold clammy sweat; in such instances I have never seen blood-letting serviceable, though many assert the contrary. In some cases the pulse ceases to beat very early, but upon opening a vein the blood flows slowly at first, gradually the current becomes fuller and stronger, the pulse beats very sensibly, and the heart thus relieved is enabled to continue the circulation.

To these we shall add from the appendix to Mr. Searle's book, the experience of Mr. Orton and Mr. Chapman. The former remarks:—

I am extremely happy to have it in my power to bear testimony in the strongest terms to the efficacy of the bleeding system of treatment

In four cases I have seen it fail; but in them all, the more severe symptoms had continued from 5 to 13 hours before admission. In 32 others, I have seen it followed by rapid cures, and in 15 of these the second stage had commenced. In none have I seen it fail, when applied before, or soon after the commencement of that stage. One of the above cases was a native, and it was one of the most strongly marked in favor of the practice. The same system has always been pursued to some extent in the natives by Mr. Owen, garrison surgeon here, and with great success.

Mr. Chapman says:—

All the reports which have hitherto been published upon the treatment of cholera, exemplify very strongly the utility of bleeding in the earliest stage of the disease: but it is also observable, that this remedy has been had recourse to in all, even its most opposite stages. In reading the Bombay Report (excellent as it is, in illustrating the good effect of bleeding in the first stage) especially does this become apparent; patients, in the indiscriminate use of this practice, are bled both at a time when the pulse is scarcely operated on by the disease, and also in the latter stage of the malady; when, from the almost total absence of the circulation, blood scarcely can be drawn. The effect of bleeding in the first instance, does in almost every case appear to be marked with a most decidedly beneficial result; and even where recovery has not been the consequence, a retardation of the last symptoms of the disease has certainly been obtained, but whilst on the one hand in the first stage of spasmodic cholera, bleeding appears to be thus beneficial; it is no less evident, that the use of this remedy in the latter stage, is almost uniformly attended with that result, than which no other could be expected. The limited opportunity I have had, in comparison with many others, of putting the practice of bleeding into execution, certainly does not warrant, in itself, the above observation; it has however been the result of the little experience I have had; it is to be observed by the perusal of all the reports upon the subject, and is an inference fairly to be deduced from every analogy which bears upon it.

Cupping and leeching would be adapted to the stage of prostration, if the skin were not so exanguineous, that little blood can be made to flow. Dry cupping, however, might do good. In sporadic cholera, we have repeatedly witnessed its beneficial effects; and our friend, Dr. Heermann, senior surgeon of the navy, has informed us, that in the edemic cholera of New Orleans, he found dry cupping of great advantage.

To the stage of prostration, succeeds, in many cases, the stage of inflammation. When this supervenes, the lancet is em-

ployed as an antiphogistic, and must be used in proportion to the intensity of the symptoms.

2. Emetics.—Many of the worst cases of Epidemic Cholera, are not attended with vomiting. That symptom, indeed, seems on the whole to be less violent, than we are accustomed to see it in the endemic of this country. We need not be surprized, then, to learn, that emetics have been administered both in Asia and Europe, with decided advantage. To be efficacious, they should be exhibited early, and the more stimulating should be preferred. If tartar emetic should be chosen, it ought to be dissolved in a fluid that will excite; such as brandy and water, or an infusion of peppermint, cayenne pepper, ginger, or mustard; or paregoric or laudanum should be added to its aqueous solution. As a stimulating emetic, a mixture of powdered mustard in warm water, or a strong solution of common salt, has been found highly efficacious; and is strongly recommended by Mr. Searle. The great power of full vomiting, and this in every case where emetic medicines are used should be the object in view, in reviving the sensibilities of the nervous system, giving impulse to visceral circulation, determining the blood to the surface, and restoring perspiration, have long been known to practical men, and fully explains its beneficial operation in Cholera Epidemica. Vomits are adapted, however, but to the stage of depression. When inflammation and febrile reaction have come on, and the patient labors under gastro-enteritis, arachnitis, or spinitis, they would of course be inappropriate and often injurious.

The experience of many British practitioners in India, has been decidedly in favor of the emetic practice. We shall lay before our readers a few extracts from Mr. Searle's book:

Mr. Wilson observes:—

> The natives of this country, among whom the disease is by no means unknown, are in the habit of giving to those affected with it, a strong solution of common salt in water; some give the following mixture, one pice weight of onion juice, and two pice weight of arrack; both these have violently emetic effects, but they say they are very successful in treating it in that manner.

The testimony of Mr. Neilson is in part, as follows:

I had been informed that emetics had been used in the spasmodic cholera with advantage, and I gave them a trial, the result of which was very satisfactory, the solution of tartris antimonii, two grains in an ounce of water, was given in half ounce doses every half hour, till free vomiting was produced, and it was encouraged by copious draughts of warm water. The whitish watery matter was at first ejected from the stomach, but the operation of the emetic being promoted, some bile was brought off; and the stools, which had continued whitish and watery, gradually assumed a bilious, or rather, a more natural appearance and a better consistence. As a strong determination takes place to the surface from the operation of the emetic, it thereby produced very beneficial effects; in the body, and particularly the extremities, which had felt cold and chilly, the circulation and natural heat were soon restored; and the pulse, which had been very feeble, or scarcely perceptible, became regular and distinct.

Mr. Barton, who prescribed tartar emetic in large doses, reports its effects in these words:—

At an early and severe period of the prevalence of the disease, when neither the number of cases nor the severity of the symptoms indicated a milder form, the tartrite of antimony was had recourse to; I must confess it was with diffidence, and some degree of anxiety and fear I had recourse to a medicine known to act as a powerful emetic, and in a disease where constant vomiting is so prominent a symptom, accordingly, I used it in the first two or three instances, in doses of one grain with five grains of calomel; its effects emboldened me, and I had it given in doses of two or three grains. One of the first effects of the tartrite of antimony, and what I look on as an important one, was, in almost all cases, bringing off the ingesta, which had been retained, though the vomiting of congee like water had been previously urgent and frequent; ten or fifteen minutes after the ingesta were thrown up, after waiting to see if the stomach was emptied of them, a second dose was administered. Every means of keeping the patients well covered now were strictly adhered to, to cause the tartrite of antimony to act on the skin. The dose was repeated every hour, or two hours, according to the urgency of the case. When the patients could be kept steadily covered, the first favorable symptoms were, a slight degree of heat about the shoulders, which gradually and slowly extended downwards; the countenance lost its collapsed and ghastly look, and the pulse began to be indistinctly felt, and the cold clammy sweats wore off.

Our limits preclude further extracts; but enough has been offered to secure for emetics a favorable estimate, among all who are not governed by prejudice against this class of remedies.

(*Concluded under the Analytical head.*)

MISCELLANEOUS INTELLIGENCE

ANALECTIC, ANALYTICAL, AND ORIGINAL.

ANALECTIC.

1. *An account of the Origin, Progress and Present State of the Medical School of Paris.*

We publish some extracts from an article in the American Journal of the Medical and Physical Sciences, on the subject of the system of Medical Education in France—a system by far the most perfect in the world. We regret that our limits do not permit the insertion of the whole article. Enough however will be presented to give a general idea of the system, and to inform our readers how immeasurably distant the best regulated institutions in this country are from the perfection of the Parisian school. F.

From this digression we turn to the main object of the present article, commencing with the course of study, which the aspirant to the doctorate must go through. It is necessary to premise, that the following remarks apply equally well to all the medical faculties of France. In order to be entitled to a diploma, the candidate must furnish certificates, proving that he has complied, prior to his commencing the study of medicine, with certain prerequisites; for example, that he has obtained the degrees of bachelor of letters and of bachelor of sciences. To receive the former he must have been examined, and have been found competent on, the following branches—Greek literature, Latin eloquence, Latin poetry, French eloquence, French poetry, philosophy, history of philosophy, ancient and modern history, ancient and modern geography.

To obtain the second of these degrees—that of bachelor of sciences, the candidate must have answered in a satisfactory manner on mathematics, natural philosophy, chemistry, zoology, botany and mineralogy. After obtaining those degrees, and presenting his certificate of birth, the written authorization of his father, or if he be a minor, of his tutor or guardian, to his engaging in the pursuits of the medical profession,

a certificate of correct and moral behaviour; after presenting these, and furnishing a security, if his father or guardian do not reside in the place, any individual may present himself with a view of commencing the study of medicine, and is admitted to take his first inscription. These inscriptions consist in placing one's name on a register kept for that purpose, and receiving a certificate attesting the fact. This ceremony is gone through every three months, and in order to be entitled to present himself as a candidate for the doctorate, the student must have received sixteen inscriptions; from which it follows, that the term required by law for the prosecution of professional studies, before the degree of doctor in medicine, or doctor in surgery is conferred, is four complete years; unless, however, these studies have been prosecuted in a secondary school. In such cases, the term required is six years, and it is in the same way obligatory upon the students, previously to have obtained the degrees already noticed—of bachelor of letters, and bachelor of sciences.

Inscriptions received in one medical faculty are of equal value in all the other faculties of the kingdom, provided, however, they are accompanied with a certificate of correct behaviour, from the dean of the faculty, or from the academical council, where they have been received. The first inscription can only be taken out at the commencement of the scholastic year. The royal council authorizes it sometimes to be taken out in the quarter, commencing in January when satisfactory reasons for not doing otherwise have been alleged, by the student; but under no pretext is he allowed to commence his studies in the third quarter. The inscriptions must be taken out in regular succession; unless the reasons assigned for not doing so, are held satisfactory by the faculty. A student who takes out an inscription for one of his comrades, loses all his own. The inscriptions received as aspirant to the title of officer of health, either in a primary or secondary school, are counted for the doctorate, provided the candidate presents, before the 13th, his diplomas of bachelor of sciences and bachelor of letters. But the diploma of officer of health is not admitted as a substitute for inscriptions in a faculty, if the studies required for obtaining said diploma have not been made in a primary or secondary school. The courses of lectures given by medical societies cannot supply the place, in order to obtain inscriptions, of those given by legally established schools. Military surgeons of the second and third classes, who have been employed in the armies, can avail themselves of their services for the purpose of dispensing with the inscriptions; or if they have attended the medical lectures delivered in the military and navy hospitals of instruction, (but in no other hospital,) each of these years of study are received as equivalent for one spent in attendance on a special school. If a young man, after taking out a certain number of inscriptions in a faculty, is called upon for his services in the army, he cannot, on his return, avail himself of the inscriptions allowed him gratuitously for those services, however numerous they may be, for any other purpose than to complete those he was in need of, prior to his departure. Students residing in cities

where faculties of medicine are established, cannot avail themselves of the studies they have made in hospitals, with private teachers, or even in the school, without having taken out the inscriptions corresponding to the period of those studies, unless they can prove, by means of certificates obtained from competent authorities, that it was impossible for them to comply with that regulation. Even under these circumstances, only four inscriptions are allowed them. Nevertheless, an exception is made in favor of those pupils who, though placed in this predicament, have gained premiums in the faculties.

In our last communication we stated, that the number of branches taught in the medical faculty of Paris amounted to sixteen. Unlike what occurs in the medical schools on this side of the Atlantic, and we believe, in the English and Scotish Universities; but in conformity with the plan pursued in Italy and Germany, the student is not at liberty, in France, to choose himself, the lectures he is to attend in each year. A regular distribution of the courses, the number of these necessary for each student to attend, and the order in which they are to be attended during each session, is fixed by the faculty, and publicly announced at the commencement of the scholastic year. To ensure the observance of this arrangement, each pupil receives a card, by which he is enabled to gain admittance to the lectures he is required to attend. Yet, though this be the case, no student is actually forced to attend the lectures, and all that he is required really to do, is to take out his inscriptions at the regular periods, and to go through the examinations in a creditable manner. If he does that, he may abstain altogether from the lecture room, and seek his knowledge where he deems best. Some years ago an attempt was made to compel the class of each professor to attend him punctually, by calling over the roll not less than twice a month. But this plan was soon abandoned; for the students, unwilling to submit to it, and determined to prevent its being put into operation, answered in full chorus to each name that was called, coughed, sneezed, and scraped their feet, so as to cover the voice of the professor.

The duration of the scholastic year is fixed at a meeting of the faculty, held prior to the opening of the course. The faculty decides on the same occasion, on the days and hours at which the different professors will deliver their lectures. But whatever be the duration of the full session, the courses are divided into two sets—the winter and summer courses. The former commences usually in the early part of November; the latter in the beginning of April, and continues until the end of August. The following will afford an idea of the distribution of the courses during the winter and summer sessions of the four years of the studies, drawn up by an arrete of the royal council in 1820.

First Year.—*Winter.*—Anatomy, Physiology, Chemistry.—*Summer.*—Medical Natural Philosophy, or Hygiene, Surgical Pathology, Botany.

Second Year.—*Winter.*—Anatomy, Physiology, Operative Surgery.—*Summer.*—Medical Natural Philosophy, or Hygiene, Pharmacy, Surgical Pathology, Surgical Clinic.

THIRD YEAR.—*Winter.*—Materia Medica, Medical Clinic.—*Summer.*—Operative Surgery, Surgical Clinic, Medical Pathology.

FOURTH YEAR.—*Winter.*—Medical Clinic, History of Medicine.—*Summer.*—Surgical Pathology, Legal Medicine, Clinic at the Hospice de Perfectionnement, Midwifery.

Since the period at which this arrangement was made, some changes, occasioned by the organization of the school. have been effected in the distribution of the courses. The following list, showing the courses delivered in the winter and in the summer sessions, though not quite satisfactory, since it does not indicate the lectures that must be attended in each year by the student, is copied from Almanach General de Medecine, for 1830.

Winter Lectures.—1st, Anatomy; 2d, Physiology; 3d, Medical Chemistry; 4th, Surgical Pathology; 5th, Medical Pathology; 6th, Operative Surgery and Dressings; 7th, Surgical Clinic; 8th, Medical Clinic; 9th, Obstetric Clinic.

Summer Lectures.—1st, Medical Natural Philosophy; 2d, Hygiene; 3d, Medical Natural History; 4th, Midwifery; 5th, Surgical Pathology; 6th, Medical Pathology; 7th, Pharmacologia; 8th, Therapeutics; 9th, Medical Jurisprudence; 10th, Surgical Clinic; 11th, Medical Clinic; 12th, Obstetric Clinic.

From this it will be perceived that all the clinics, as well as medical and surgical pathology, are taught both in winter and summer. These double courses are not, however, obligatory in both seasons, but have been arranged in that way with a view to accommodate those students who feel disposed to attend them during summer instead of winter, and who have thereby more time to devote to anatomy and the other branches.

We now pass to the subject of the examinations. Before presenting himself to these, the pupil must of course have complied with every prerequisite for graduation, and must in particular present the diplomas of his degrees in letters and sciences. Nevertheless, officers of health, who have served in the capacity of military surgeons, as well as those who have taken out inscriptions in a secondary or in a military medical school prior to the first of January, 1823, are dispensed with presenting the diploma of bachelor of sciences. The degree of master of arts obtained in a foreign university, cannot supply the place of that of bachelor of letters. Pupils who on the 1st of January, 1826, had more than one inscription, were allowed, until the 1st of January, 1827, the choice between two modes of examination. Agreeably to the old mode, the pupil who had taken out sixteen inscriptions was, at the expiration of the last quarter, allowed to offer himself as a candidate for the degeee of doctor in medicine, on submitting to five examinations and defending a thesis. Anatomy and physiology constituted the subjects of the first examination; pathology and nosology of the second; materia medica, chemistry, and pharmacy of the third. At the fourth examination the candidate was tried on hygiene and medical jurisprudence; while the fifth examination was appropriated to the medical or surgical clinics, according as the candidate aspired to the degree of doctor of medicine or doctor of surgery.

Agreeably to the new mode, the subjects of the examinations are arranged in the following order:

1st. *Examination three months after the eighth inscription.*—Medical Natural History, Medical Natural Philosophy, Medical Chemistry, and Pharmacologia.

2d, *Examination three months after the tenth inscription.*—Anatomy and Physiology.

3d. *Examination three months after the twelfth inscription.*—Medical and Surgical Pathology.

4th. *Examination three months after the fourteenth inscription.*—Hygiene, Legal Medicine, Materia Medica and Therapeutics.

5th. *Examination three months after the sixteenth inscription.*—Medical Clinic, Surgical Clinic, Midwifery.

Candidates who have undergone the examinations of the eighth, tenth, twelfth, fourteenth quarters, (trimestres,) are alone allowed to take out the tenth, twelfth, fourteenth, and sixteenth inscriptions.

From the 1st of November, 1829, every candidate without exception have been compelled to undergo their examinations agreeably to the preceding mode. These examinations are conducted by two professors and an aggrege. Each of them has an adjunct who supplies his place in case of his being absent. The examinations take place for four candidates at one time, their names being registered according to alphabetical order. They commence at one o'clock, and terminate at three; so that each candidate is examined during half an hour, or during ten minutes by each examiner. Whether the candidate be examined agreeably to the old or to the new mode, he is required to hand in, at the fifth examination, the details of six observations collected at the bed-side of the sick. Of these, four at least must have been collected in the clinics of the faculty, and their authenticity must be certified by the professor. Candidates for the degree of doctor in medicine present the histories of four cases of internal, and two of surgical diseases, while those who aspire to the degree of doctor in surgery, are required to furnish four of surgical, and two of internal diseases.

The candidates are classed, for their examinations, agreeably to the date of their inscriptions, and under no pretext is the name of the examiners communicated to them beforehand.

For the examination on anatomy and physiology, the candidate makes on the dead body an anatomical preparation previously designated to him. On a subsequent day he answers to several anatomical and physiological questions, having a bearing on the nature of the preparation he has made, and gives a demonstration on the skeleton of the different parts of osteology. At the examination on materia medica, chemistry, and pharmacy, the candidate answers demonstratively to the questions put to him on medicinal substances. The examination on internal and external pathology, (medical and surgical,) is conducted in Latin. It takes place at one sitting. The same holds in respect to the examination on hygiene and legal medicine, in which the candidate is required to write the formula of a report on a subject proposed at the moment.

At the examination on the clinics, questions proposed beforehand are drawn out by lots, (tirees au sort.) They have reference to fixed and well known practical cases. To these questions the candidate must answer in Latin and in writing. With this view he repairs to the school, at least three hours prior to the examination, and there prepares his answer without the assistance of any one. In presence of the examiners he answers *viva voce*, in Latin, to all questions which his own written answer may elicit. When the candidate aspires to the degree of doctor of medicine, a greater number of medical than surgical questions are proposed to him at this examintion. The reverse is the case when he wishes to obtain the degree of doctor of surgery. Under these circumstances he is moreover obliged to perform on the dead body all the operations required, in soft and hard parts, for the cure of the diseases which form the object of the examination.

It occasionally happens that a candidate is found incompetent on particular branches, and is required to attend to these forsome time longer. In such case this extension of studies, and the examinations consequent upon it, must always, unless by special leave, take place in the same faculty.

After expressing, by inscribing his name on a register kept for the purpose, his intention of defending his thesis, the candidate deposits the manuscript at the office of the administration, and the dean designates a president who examines and signs it, and becomes responsible for the principles and opinions it contains, in relation to religion, public order, and morals. If he considers the thesis suitable for forming the subject of the sixth examination, the president makes a report to that effect. Should this not be the case, his decision is referred to the faculty. He superintends the printing, signs the proof sheets of the essay, which cannot be distributed unless he certifies that all the formalities have been complied with. Should a thesis, when distributed to the public be found different from what it was in the manuscript submitted to the examination of the president, or should it have been printed before the manuscript had received the sanction and signature of the latter, it would, together with the sixth examination if the latter had taken place, be annulled. The candidate would be refused his diploma, and obliged, before obtaining it, to defend a thesis on another subject; after a lapse of time fixed by the royal council; and that too, independently of other academic punishments that may be incurred in consequence of any objectionable principles contained in the printed thesis.

The thesis is defended before the president of the board, several of the professors, and two aggreges. The act continues an hour. The president has no vote in the decision of the jury of examination, but may nevertheless take part in the deliberation. In case of an equal division of votes relative to the propriety of admitting the candidate, the opinion of those in his favor is adopted. Every certificate of capacity delivered by a faculty, must, before being converted into a diploma by the royal council, be approved by the rector, (whose office is filled at

Paris by the dean,) and the certificate of approbation refers as much to the moral conduct as to the capacity of the candidate. The rector has consequently the right of refusing a diploma to one who does not merit it. The diploma is given by the grand master, who may suspend the delivery, of it, referring this act to the council of state. He may also compel the candidate to go through his examination a second time.

Doctors in medicine who wish to obtain the title of doctor in surgery, and vice versa, are required to sustain a fifth examination, and defend a thesis on a surgical or medical subject, according to the nature of the degree they wish to obtain. They are at the same time obliged to pay one hundred francs for the fifth examination, one hundred and twenty francs for the sixth, or thesis, and one hundred francs for the seal of the university, making a total of three hundred and twenty francs. But a doctor in medicine is not allowed to present himself to the fifth examination for the doctorate in surgery, before having defended his thesis in medicine, and the examiners must be apprized of his intention, of obtaining the one or other of these degrees, in their letter of convocation.

When, in 1794, the schools of Paris, Montpellier, and Strasburgh, which, like all the other establishments of the kind, had been abolished a few years before, were reorganized, a professor and an adjunct were attached to each chair. In the progress of time, however, these adjuncts became assimmilated to the titulary professors. From this, it followed, that the number of these was doubled; and that, as the number of chairs was not increased, except at Paris, where a professorship of medical bibliography was created, there were, in fact, two professors for each chair. By the same law, (4th Dec. 1794,) the professors were directed to be appointed by the committee of public instruction, on the presentation of the commission of public instruction. By the general law on that subject, dated 11 Floreal, an x, (10th May, 1802,) it was directed that the professors should be nominated by government, from among three candidates; the first of whom was presented by one of the classes of the Institute, the second by the general inspectors of the studies, and the third by the professors of the school. This arrangement continued in force until the period of the organization of the university by Napoleon, on the 17th of March, 1808. By the decree of that date, it was ordered that, at the first formation of that gigantic establishment, the grand master should nominate to all the chairs in each of the faculties; but that at subsequent periods all vacancies occurring in them, should be filled by individuals selected after a public concours.

By the ordonnances of November, 1822, and February, 1823, which effected the dissolution of the old faculty, and the reorganization of the school of Paris; and by subsequent ordonnances, which occasioned similar changes in the schools of Montpellier and Strasburgh, a new arrangement was made in the board of teachers attached to these establishments, and in the mode of nominating them. This arrangement consisted in appointing two sets of teachers—professors properly so called, and aggreges, or adjuncts.

The mode of election by *concours* was rejected for the former; but admitted for the latter. This occasioned at the time, and for a long period after, much discontent among the members of the profession, and the medical journals were clamorous in their demands for the readoption of the concours for the selection of the professors themselves.

Such was the organization of the faculty and the mode of electing professors when the revolution of July, 1830, broke out. In our last communication we stated that by the ordonnance of Louis Philip, dated the 5th of October, which revoked the obnoxious ordonnances of 1822 and 1823, it was ordered that vacancies occasioned by the death of some of the old professors, who were reinstated in their chairs, should be filled, as formerly, by a public *concours*. It remains now to state, that the same formality was enjoined in all subsequent elections. This measure, which was demanded by a considerable majority of the profession, not only as a matter of right, because it had been established by law, and abolished illegally by an ordonnance, but also as the most proper to ensure the admission into the faculty of men of talents, and the exclusion of ignorant pretenders, was, however, opposed by some who preferred the mode by presentation—by others again who advocated the method of simple nomination by the academic council, by general election among all the physicians of the place, &c. But the partisans of these methods were few in number in comparison with those who advocated that by *concours*, a circumstance which doubtless contributed in confirming the government in the idea of prescribing the latter in all vacancies that might subsequently occur in the faculties.

But before we proceed any farther we must be allowed to correct an error which crept into our last article. It is there stated, that in consequence of the changes effected in the faculty of Paris by the ordonnance of October, 1830, the body of the aggrégés was necessarily suppressed. We should merely have stated that the *privileges* conceded to these supplementary professors—of being allowed to deliver private lectures and the only class eligible to professorships, both of which were violently opposed as unjustifiable monopolies and as preventing emulation, were suppressed by that ordonnance.

The body itself, thus shorn of its obnoxious privileges, and reduced in its functions, to supplying the place of absent professors, and to a participation in the examinations, was retained.

The following will present a full view of the regulations of the concours:

SECTION I.—*Composition of the Jury of the Concours.*

Article 1st. The jury of the concours is composed, 1st, of eight professors of the faculty of medicine of Paris; 2d, of four doctors in medicine or surgery, or academicians who are not professors of the faculty, and who are selected in a manner presently to be mentioned, in the Royal Academy of Medicine, in the Academy of Sciences, or among the physicians and surgeons of the hospitals.

Article 2d. The judges selected from among the professors, are,

1st, for the chairs of natural philosophy, chemistry, medical natural history, pharmacy, and materia medica; the professors attached to these chairs, and in addition to them the professors of anatomy, physiology, hygiene, and legal medicine.

2d. For the chairs of surgical clinic and surgical pathology, operations, obstetrics, of obstetric clinic, and of anatomy; the professors attached to these chairs, less one of surgical clinic, who will be excluded by lot.

3d. For the chairs of medical clinic and medical pathology; the professors attached to those chairs, and in addition, the professors of physiology, materia medica, and hygiene.

4th. For the chairs of physiology, hygiene, and legal medicine; the professors occupying those chairs, and the professors of anatomy, natural philosophy, chemistry, obstetrics, one of the six professors of surgical clinic and pathology drawn by lot, and one of the six professors of clinical medicine and medical pathology, also chosen in the same way.

If by rejection, (récusation,) or any other cause, one or several professors of the four preceding series are prevented from performing duty, substitutes will be provided from among the professors of the three other series.

Article 3*d.* The judges selected out of the faculty are as follows:—

For the chairs of anatomy, physiology, medical and surgical clinics and pathtology, obstetrical clinic, surgical operations, obstetrics, hygiene, materia medica, legal medicine, and pharmacy, four doctors in medicine or surgery, chosen by the academy of medicine in the corresponding section or sections of that body. Two of them must be selected from among the physicians and surgeons of the hospitals.

2d. For the chairs of natural philosophy, chemistry, medical natural history; four members of the Academy of Sciences chosen by that body, to wit, for the chairs of natural philosophy and chemistry in the two sections of natural philosophy and chemistry; for the chair of natural history in the three sections of natural history.

Article 4*th.* To these twelve titular judges will be added three supplementary ones, (suppléans,) two of whom will be selected from among the members of the faculty, and drawn by lot, and one chosen by the Royal Academy of Medicine.

These supplementary judges will attend at all the sittings of the concours, and will supply the place, the two first of the professors of the faculty, and the third the place of the judges not attached to that body, whenever these may be obliged to absent themselves during the continuance of the concours. Under no other circumstances are they allowed to take part in the deliberations of the jury.

Article 5*th.* The titulary and supplementary judges elect by ballot the president and secretary of the jury.

SECTION II.—*Of the Conditions required of Candidates.*

Article 6*th.* In order to be entitled to present himself as a can-

didate to a chair in the faculty of medicine of Paris, every individual must be, 1st, a Frenchman by birth or by letters of naturalization; 2d, full twenty-five years of age at the moment of the inscription; 3d, and either a doctor in medicine or a doctor in surgery.

SECTION III.—*Of the Trials of the Concours.*

Article 7th. The concours is composed of four kinds of exercises or trials:—

1st. The appreciation of the anterior claims of each candidate, made at an assembly of the judges, and at which the merit of his writings and services is fully discussed.

2d. A printed dissertation handed in to the jury twenty days before the opening of the concours, and the subject of which consists in general views on the disputed chair, and on the plan and method that should be adopted in teaching the particular branch.

3d. A written answer to a question drawn by lot, and which is the same for all the candidates, made in a close room, (a huis clos,) and during a space of time which is the same for all. The candidates afterwards come in rotation, and read their compositions at an assembly of the jury.

4. A lecture delivered after a day's preparation, on some subject connected with the object of the chair—each candidate drawing by lot the subject on which he is to lecture.

5th. A lecture delivered after three hours preparation, on a subject drawn by lot, and which is the same for all the candidates who can go through that trial on the same day.

Article 8th. The candidates for the chairs of clinic are exempted from these last mentioned trials, to which is substituted two clinical lectures delivered in the lecture room of one of the clinical hospitals of the faculty, after the visit of some patients selected by the jury.

Article 9th. The lectures are an hour in duration—they must be oral, and the candidates cannot make use of any other than simple notes.

SECTION IV.—*Of the Judgment of the Concours.*

Article 10th. Immediately after the last sitting of the concours, the judges assemble and elect by secret ballot, and by a majority of the whole, the successful candidate. Nine constitute a quorum. In case of equal division, the president has the casting vote. The judgment is immediately announced to the public.

Article 11th. The mode of ballotting is the same as for the election of members of the academy of sciences.

Article 12th. The candidate elected at the concours receives the investiture of the office from the grand master of the university.

Each of the professors received, and we believe continues to receive, a fixed salary of three thousand francs, besides ten francs for every examination at which he is present. The president at the last examination, (thesis,) receives fifteen francs. Every professor who is designated to be present at any *act* of the faculty, and absents himself without leave of the dean, is fined. If he absents himself

without leave, and does not perform his duties at the school, he loses his salary during the whole time of his absence. Professors who in their lectures, discourses, or in their social intercourse, disregard the respect due to religion, morality, or government, or in any scandalous way compromises his reputation or the honour of the faculty, is referred by the dean to the academic council, and the latter, according to the extent of the offence, pronounces either his suspension from duty or his final expulsion. The punishments to which the professors are amenable, are, 1st, arrests; 2d, reprimand in presence of the academic council; 3d, censure in presence of the council of the university; 4th, transfer to an inferior office; 5th, suspension from their functions for a fixed period, with or without a total or partial privation of their emoluments; 6th, leave of retirement before the time of *emeritus*, with emoluments lower than the pension allowed under the latter circumstance; 7th, erasure from the list of members of the university. This is a most severe punishment, as it prevents the individual subjected to it from ever filling an office in any of the public departments.

Two weeks before the commencement of the scholastic year, each professor submits for the examination of the faculty the programme of his course. Each of the courses must be completed before the termination of the year, the faculty determining, before the commencement of the lectures, the duration of each course. The general programme is then published and posted up.

2. *Effects of Opium Eating.*—We took occasion not long since to remark on the singular analogy between the respective effects of opium and alcohol on the system, and to observe that it was the difference of the circumstances under which the two articles were commonly taken which produced so considerable a diversity in the symptoms resulting from them; and that as opium, when taken by an individual acted upon by external stimuli, as those of light and sound, often fails to produce somnolency, so alcohol, if swallowed under opposite circumstances, as in silence and darkness, proves directly soporific. Our opinion on this point has been recently confirmed by the result of some inquiries we have made of a person addicted to the habit of using laudanum in considerable quantity. The individual is a female forty years of age, who for some years has been in the habit of taking from half an ounce to an ounce of laudanum daily, for the sake of removing uneasy sensations apparently connected with a dyspeptic state of stomach. She never experiences from its use the effect of sleepiness, nor are her hours of sleep at all affected by the very variable period at which she uses the drug. Her usual course is to take a dose a short time before each meal, and other doses at uncertain hours. Unless fortified in this manner, the stomach is so irritable as to be incapable of retaining food. The bowels are moderately, not excessively constipated, and as her habit is entirely sedentary, it is doubtful how far this circumstance is connected with the use of the drug. She is otherwise temperate in her habits.

To what extent, and in what manner, the use of opium is injurious to the animal economy, is a point which is yet undetermined, and which is the less likely to be settled, as the unhappy victims of this habit labor even more sedulously than those addicted to the use of ardent spirit, to conceal the fact from notice; while the effects being less marked, the concealment is much easier in the former case than in the latter. In fact, it not unfrequently happens that a physician attends a patient in the daily use of this indulgence, and remains entirely ignorant of its existence; while, on the other hand, the evil is of such limited extent compared with that of drunkenness, as to make it less desirable to bring it into public notice. The few statements which have been furnished us on this subject are either vague and general, as the accounts of travellers who have witnessed its effects in the East, or fanciful and exaggerated, as is the case with the Confessions of an Opium-eater. This last production, however interesting and highly wrought considered as a literary work, has too much of the marvellous and is too poetical to be consulted for sober facts. We see that attention has lately been attracted to this subject by a case which lately took place in England, the decision of which involved in some sort that of the question above alluded to. This arose out of a claim made by the representatives of a deceased nobleman in Scotland for the amount of insurance effected upon his life. The claim was resisted on the ground that the individual alluded to was an habitual opium eater, and that this fact was not made known to the company at the time when the insurance was effected. The particulars of the case are mentioned in the thirty-fifth number of the Edinburgh Medical and Surgical Journal, and we refer our readers to that authority for its details. It is sufficient here to mention, that during the two years that intervened between the signing of the policy and the death of the Earl, his daily portion was from two to three ounces of laudanum, and that at one time the allowance per diem was not less than forty-nine grains of solid opium, and an ounce of laudanum. The effect of this is somewhat variably stated by the evidence adduced on opposite sides; but the amount seems to be, that while under the influence of the drug he attended to business, saw and conversed with his friends, appeared cheerful, and exhibited no symptoms distinctly resembling intoxication: on the other hand, that his appetite became exceedingly impaired, that when he rose in the morning he was so stiff as to be unable to support himself, and that he was subject to depression and low spirits. Several physicians were examined and some of high eminence, on the general question as to the influence of this habit on the general health; but as it happened, not one of them was able from his own experience to pronounce it prejudicial. The jury found the insurance company liable. In consequence of this decision, and apparently with a view to make up the deficiencies of his own evidence, Dr. Christison has come out in the Journal above mentioned with his views on this subject. The doctor is unwilling to admit that the habitual use of this drug can be indulged in with entire impunity; but the facts which he adduces go to show that the injurious effects are often

exceedingly slow in taking place; that when the constitution has become once inured to the poison, so that the aid of habit is fairly enlisted in defending the system, the nerves, as well as the stomach, will hold out for a wonderful period against its destructive influence. For the benefit of those who have not the opportunity of recurring to the article itself, we quote the following list of cases, which, even regarded as exceptions to a general rule, are sufficiently remarkable.

"1. A young lady of five-and-twenty has taken it largely for fifteen years. It was first administered secretly by her nurse to keep her quiet and save trouble; and the unhappy lady was subsequently compelled to keep up the practice for her comfort. She enjoys good health. 2. A female, a patient of mine in the Infirmary, a martyr to the rheumatism, took it for ten years previous to her fortieth year in the quantity of a drachm daily of solid opium. She then gave it up. Six months afterwards she was attacked with jaundice; subsequently she was several times severely ill of rheumatism; and she died in her forty-third year of consumption. This woman, however, led a licentious life from an early period. 3. A well-known literary gentleman, who has taken laudanum with some intermissions for twenty years, and occasionally to the extent of nine or ten ounces daily, has now attained his forty-fifth year. He is spare in form, looks older than he is, but is capable of undergoing a good deal of bodily fatigue, and enjoys tolerably good health so long as he takes sufficient exercise. His allowance when I had last an opportunity of conversing with him was about nine drachms of laudanum daily. 4. A lady in this city, after drinking laudanum to excess for upwards of twenty years, died about the age of fifty. No information could be supplied of the disease of which she died. 5. A lady of the same age takes about three ounces daily, and has used it for many years. She appears to enjoy good health. 6. A lady, about sixty years of age, had taken it above twenty years, and is in good health. 7. A charwoman, who had been in the daily practice of drinking two ounces of laudanum for many years, died at the age of sixty. The gentleman who has stated this fact, does not remember what disease she died of, although he dissected the dead body. 8. An eminent literary gentleman, I am informed, has been in the habit of taking laudanum since he was fifteen; and his daily allowance has sometimes been a quart bottle (twenty-six ounces,) consisting of three parts of laudanum and one of alcohol. Enormous as this dose may appear, I am assured this fact is well known to his acquaintances. He is about sixty years of age, and enjoys good health. 9. A lady of seventy, now alive, has taken about an ounce of laudanum daily for nearly forty years. She enjoys tolerable health, and every year travels great distances to visit her friends. 10. An old woman of eighty died a few years ago, at Leith, after taking about half an ounce of laudanum daily for nearly forty years; and she enjoyed tolerable health all the time."

The secret, no doubt, by which both alcohol and opium are so often rendered apparently innoxious, is to be found in their regular and systematic use, as distinguished from occasional indulgence in excessive

doses. In regard to opium, this precaution is the more likely to be adopted, since an overdose is known to be attended with immediate danger; and those who acquire the habit are compelled to feel their way and increase the quantity only as the susceptibility becomes obviously diminished. The fitness for this kind of training, however, must vary in different individuals with other peculiarities of constitution; and there is little doubt but many pay with their lives the penalty of their imprudence, before the habit can properly be said to be established.

With regard to constipation, as an effect of this habit, it seems not to be more constant than the other ill effects which are attributed to its use; and it may be doubted whether in those who have become duly seasoned to its employment, this circumstance continues to constitute an inconvenience. The opium-eaters of the East are not compelled to use cathartic medicine, and in the case at least of those above mentioned, no laxatives at all appear to have been resorted to.

3. *Neuralgia successfully treated with the Cyanuret of Potassium.*—Dr. Lombard, of Geneva, has employed the cyanuret of potassium with success in the treatment of several cases of neuralgia. Dr. L. applies it by friction; he uses a watery solution in an ointment according to circumstances. The watery solution is of the strength of from one to four grains to the ounce of water, and the ointment is composed of from two to four grains of the salt to an ounce of lard.—The aqueous solution he considers in general, the most prompt in its effects.

Case I. *Facial Neuralgia instantaneously cured by the Hydrocyanate of Potash in Friction.*—A lady, of robust habit, forty-nine years of age, was a martyr to the most agonizing occasional attacks of pain in the space between the temporal region and the ciliary arch and maxilla. She used to scream violently in these torturing accessions, and sometimes lost all appearance of sensibility to such a degree that she had been supposed to be struck with apoplexy. Pulse 84; face rather flushed; no functional derangement. She was ordered to be rubbed with the aqueous solution, containing sixteen grains of cyanuret of potassium in four ounces of distilled water: it was rubbed on the forehead and cheek with a ball of cotton. The pain gave way almost instantaneously at the very first application, and seemed, as the patient said, to be rubbed away with the hand. A complete cure was effected by persevering a little while in the use of the remedy.

Case II. *Periodic Neuralgia removed by the Ointment of the Cyanuret.*—The cure in this instance was less prompt, but not less certain. A lady, thirty-eight years of age, experienced the severest pains in the temporal region and upper jaw of the left side: they came on regularly every morning at four o'clock; went on increasing in severity until about ten, and did not cease till four in the afternoon. In that interval she laboured under anorexia, fever, head-ache, &c. and was almost driven distracted. She was bled to twelve ounces to relieve congestion, and then the ointment was applied to the cheek and

temple. Two grains to the half ounce of lard were at first employed, but the improvement was more rapid under the application of ten grains to two ounces. Lotions of the cyanuret were eventually used, and the cure was complete.

Case III. *Facial Neuralgia almost immediately cured.*—A lady, twenty years of age, suffered for several days, at the same hour, the most torturing pains in the orbital and supra-maxillary regions. Her face was much flushed, particularly on the affected side. Ten grains of the cyanuret were dissolved in four ounces of distilled water, and rubbed on with cotton. The application was quite successful.

Case IV. *Chronic Occasional Neuralgia similarly treated.*—A woman, of eighty, who had long suffered from irregular attacks of this complaint, was cured by lotions and frictions, compounded pretty strongly, and continued for some time.

The cyanuret of potassium is contra-indicated where the nervous affection is complicated with inflammatory action, discharge, &c. It is a useful remedy in non-inflammatory rheumatism.

In sciatic neuralgia it has not been successful—nay, it has been necessarily discontinued, on account of some unpleasant accidents which it occasioned.

In white swelling, attended with acute pain, poultices moistened with the solution had the effect of producing much comfort, though the continuance of their application had no promise of amendment in it.

It is on the whole inferred that the calming properties of this remedy are superior to those of any other known, and that it should always have a preference where inflammation does not exist. Lotions, with hydrocyanic acid, are by no means to be compared with it, for the acid is decomposed with facility, and scarcely to be used without danger.

The first application of the cyanuret in the above way is claimed by M. Buttigny and his brethren of Geneva, but it is disputed with them by Messrs. Robiquet, Villaume, and Bally of Paris—*Gazette des Hopitaux, Medical Gazette, Sept.* 1831.

4. *Excoriations of the Mammæ.*—Dr. Feist, of Bensheim, states, in the 4th volume of the *Gemeinsame Zeitschrift fur Geburtskunde*, that excoriations of the mammæ may be cured more promptly by a solution of corrosive sublimate than by any other means. He recommends two or three grains of the sublimate to be dissolved in an ounce of rose or distilled water. A little of this is to be warmed; a small piece of fine linen, several times folded, or a piece of lint wet with this, is to be applied so as to cover the excoriation. This application should be always made directly after suckling, and the breast must be carefully washed with tepid water or milk before applying the infant to the breast. Great care is of course always necessary in applying so powerful a remedy. When the excoriations are not very deep, Dr. F. says that they will be commonly cured by this means in a few days.

5. *Increased sensibility of the retina.* By R. Middlemore, Esq.—The term morbid sensibility of the retina applies to a variety of dis-

eased conditions, which may or may not be attended with an organic change in the texture of the retina itself: for instance, the retina may possess an augmented sensibility to light, forming what is termed photophobia; it may be unusually sensitive to some particular colour, or to many colours; or it may be morbid as regards its sensibility only in reference to certain combinations of colour. Then, again, it is important to distinguish between increased and depraved sensibility, inasmuch as the former consists in an augmented sensation, from a natural degree of impress, whilst the other mistakes, distorts, and perverts the form, colour, magnitude, and distance of surrounding objects.—Each of these states of the retina is, in nearly every instance, symptomatic of disorder, disease, or irritation of some near or distant organ or texture, scarcely ever arising from any functional or organic defect in the retina itself as a primitive disease; but as I intend to confine my observations as much as possible to the increased sensibility of the retina to light merely, I shall only adduce the more ordinary causes of this single phenomenon.

The retina of strumous children has frequently a much increased susceptibility to light, without being combined with any change of texture: in the same way various morbid or irritable states of the uterine system lead to the production of this condition of intolerance of light; and the defects of this function to which I more particularly allude, are those in which the uterine secretion is altogether absent, or diminished in its quantity, to which must be added painful and irregular menstruation. I have seen very many cases of this description where the retina has been so intolerant of light that the eyelids have been closed during the whole of the day with a spasmodic force equal to that which occurs in acute retinitis, so that any attempt at separating them has occasioned great pain, and induced severe spasm of the orbicularis palpebrarum, yet the eye itself has been perfectly free from inflammation, and quite natural in appearance, with the exception of a contracted state of the pupil. If such a condition of retina exists in combination with amenorrhœa, suitable remedies, directed to the torpid condition of the uterus, will, if they establish its natural function, quickly relieve the spasm of the orbicularis, and remove the augmented sensibility of the retina, and any attempt to restore the eye to its natural and healthy condition, under such circumstances, by local remedies, employed with a view of "deadening" the sensibility of the optic nerve, would be far from constituting the "most rational mode of treatment." A short time ago, I saw, in the absence of a medical friend, a young woman whose case is so fully illustrative of my views on this subject, that I shall briefly mention its outlines. She was a girl of a healthy appearance, and about nineteen years old, and had never yet menstruated, but suffered occasionally from pain in the loins and the lower part of the abdomen. The eyelids were forcibly closed; and from the frequent and powerful contraction of the orbicularis and corrugator muscles, they had acquired considerable power and thickness. The most careful attempt to examine the state of the eye occasioned extreme torment and profuse lachrymation, and was succeeded

by a series of painful and spasmodic contractions of all the muscles of the eye-ball and lids; but there was no external inflammation, and no evidence of any deep-seated inflammatory mischief, although the pupil was extremely small and contracted. She had tried various local applications before I saw her without the slightest advantage, but was speedily cured by the use of Griffith's mixture and a few of the common pilulæ aloes c. myrrha. A young woman came to me a few days since from Westbromwich, with, to use her own words, a spasm of the eye-lids; and after examining the state of the eye, (one organ only being affected,) and observing its freedom from inflammation, I ascertained that she also was the subject of amenorrhœa; and although she has tried fomentations and collyria, of various kinds, for many months, I have little doubt of her speedy and perfect restoration by the employment of the constitutional treatment which the more important disease, (amenorrhœa) of which the condition of the retina is merely a symptom, requires.

Without entering further into the details of cases illustrative of the various causes of an increased sensibility of the retina, I may state, 1st, that it may be produced upon any source of gastric and intestinal irritation, the most frequent of which is, that condition of the mucous surfaces which occurs in strumous children, or is produced by the existence of worms; 2d, by general nervous excitement; 3d, by various morbid states of the sensorium; 4th, by various disordered, diseased, or irritable conditions of the uterine system; 5th, by inflammatory and other affections of certain parts of the eye; 6th, by disorder or disease of its own proper structure, and this is of all others the most infrequent cause of photophobia.

As regards the treatment of this increased sensibility of the retina, it will, of course depend altogether on the cause producing it; but as in nearly every instance it is but a symptomatic affection—a symptom of disease or disorder in some other part—local treatment, in the general, must be of a very subordinate character.

It is not, however, my intention to pursue this part of the subject in detail; for the adoption of such a course would be absolutely detaching one symptom of a disease from its associates for the purpose of distinct treatment; it would, in short, be making a separate disease of a symptom without any good or sufficient reason for so doing. The treatment of the scrofulous, the gastric, and the uterine photophobia, and, indeed, almost all its other forms, is, in fact, but the treatment of the disordered or diseased condition of that organ, or that state of the system, of which it is but an occasional symptom; and which must be conducted on the same principles which would guide us in the management of the same cases where no affection of the retina existed.—*Lond. Med. Gaz. July*, 1831.

6. *On Poisoning with Acetic Acid.*—In the *Journal de Chimie Medicale*, for August last, there is an account of some interesting experiments by M. Orfila, relative to poisoning by acetic acid. The following are M. Orfila's conclusions:—

1st. That the concentrated acetic acid is an active irritating poison, capable of speedily producing death in men and dogs when introduced into the stomach.

2d. That it occasions sanguineous exudation, afterwards softening and inflammation of the membranes of the intestinal canal, and sometimes even their perforation.

3d. That in most cases it produces a blackish colour, either general or partial of the mucous membrane of the stomach and bowels. This discoloration is the result of the chemical action of the acid on the blood, in fact, by its mixture with this concentrated acid, the blood, cooled and placed in a capsule, soon acquires the same tint.

4th. Common vinegar, in the dose of from four to five ounces, induces the same symptoms, and death in dogs of the common size, in from twelve to fifteen hours, unless it is vomited soon after being swallowed; in rather a larger dose it probably produces the same effects in man. If in opposition to this it is said that persons have swallowed a tumbler of vinegar without a fatal result, this doubtless depended upon the stomach of such persons being filled with food, and vomiting soon occurred.

7. *Opium.*—I have treated equal quantities of Turkey and English opium by the same process, and obtained twenty per cent. more morphia from the latter than the former; this would sanction the belief of the superiority of the English; which superiority, I think, is to be attributed to the careful manner in which it is prepared.

I have invariably found the flat pieces of opium to be the best, much more free from impurities, and have frequently found in the same case of opium the flat pieces to break with a short clear fracture, while the thick and round pieces were full of leaves and impurities, and I am thus always particular in selecting opium to reject the nodular pieces.

It is a matter of some moment to be in possession of the best preparation of a substance in such general use as opium. The preparation is, perhaps, the one which follows:

Denarcotised acidulous Tincture of Opium.—Digest 1 oz. of coarsely powdered opium in one pint of sulph. æther, s. g. 735 for ten days, occasionally submitting it to the influence of a moderate heat, until it ceases to act upon the opium, separate the opium and dry it, then digest in spt. vin. rect. 8 ozs. acetic acid fort. 2 ozs. aqua 6 ozs. for seven days, and filter. This preparation will be found to possess great advantages over laudanum and the black drop of the shops, to which it will be much preferable, inasmuch as it will be destitute of the stimulating principle, (narcotine,) which produces such distressing effects, and frequently forbids the administration of opium where it might otherwise be extremely useful. The addition of acetic acid will contribute much to increase the calming or sedative effects, which are most generally desired, and for which opium is particularly given. By its union with the morphia, it forms in solution the active sedative salt of opium, (acetate of morphia,) and differs only from the solution of the ace-

tate of morphia of the shops, in its state of purity, and as the extraneous matter with which it is associated has no effect on the animal system, it may be considered as a good article, and should be preferred for general use, in consequence of being much less expensive. As this preparation will always possess uniform strength, and a like proportion of opium, it certainly deserves a conspicuous place among our pharmaceutical preparations, and justly merits to supercede entirely the common black drop of our shops, which is a very uncertain preparation, differing every where in activity from the indefinite and vague manner in which it is directed to be made, to say nothing of the worse than useless articles which enter into its composition, such as yeast, nutmeg, and saffron. The black drop owes its superiority over laudanum to the acetic acid of its composition, and to that *alone*, and it will be admitted by those conversant with the articles in question, that acetic acid exercises a most powerful inflence in modifying the effects of opium. This I can account for in no other way than by its uniting with the morphia, thereby rendering it much more soluble, and consequently facilitating its effects on the constitution, which are directly sedative, while the effects of opium in its natural state are stimulating.—*Carpenter's Essays on some of the most important Articles of the Materia Medica.*

8. *Acetate of Morphia.*—I would here remark, that the acetate of morphia, of the shops, is a sub-acetate, and is less active than the acetate or super-acetate, which, being a deliquescent salt, must necessarily be kept in solution; it is, therefore, requisite in making the solution from the sub-acetate, to add acetic acid rather in excess than under neutralization. The following is the formula I have adopted, which will make a handsome solution, and is a preparation that will keep:—

Sub-acetate of morphia, - - - - - -	11 grs.
Alcohol, acidulated with twelve drops of acetic acid (pure *concentrated pyroligneous acid*), - -	1 oz.
Distilled water, - - - - - - -	1 oz.

Dissolve the morphia in the acidulated alcohol, and add by degrees the water, and filter. Dose of the solution, from fifteen to twenty drops.—*Ib.*

9. *Piperine.*—Piperine has proved a valuable adjunct to quinine; equal proportions of each will act with much more energy than the whole quantity of quinine or piperine alone. Dr. Chapman informs us, he has met with much success in the treatment of intermittent fevers, by employing the following prescription:

R. Quinine, - - - - - -	grs. X.
Piperine, - - - - - -	grs. X.
M. ft. Pill, - - - - -	No. X.

One to be taken every hour in absence of fever.

Oil of black pepper is much more active than piperine, one drop being fully equal to three grains of piperine. Three drops of oil of

black pepper added to ten grains of quinine, will greatly increase the powers of this remedy. Oil of black pepper alone is a valuable stimulant in typhus fever, and is a valuable adjunct to many medicines.

From these experiments it is concluded, that the extract of pepper is not only one of the best succedaneums for the bark, but that it is even preferable to it, on several accounts.

1st. It never produces disturbance in the stomach or bowels.

2d. It never fails in producing a cure.

3d. Those who were cured did not in any one instance experience a relapse.

4th. It produces a regular alvine discharge, as well as the excretion of urine and sweat.

5th. None of those who were cured, experienced that sensation of langour, so common to a state of convalescence.—*Ib.*

10. *Salacine.*—This article has lately been introduced here, and as far as it has been yet used, has given the most entire satisfaction. Dr. Miller of Lancaster informs me that he has successfully treated several cases of intermittents, in which quinine appeared to have no effect, and which readily yielded under the use of salacine; and from the experiments which he has made with it, is fully of the opinion that it is a very valuable medicine, and more efficient than the quinine.—*Ib.*

11. *Oil of Cantharadin.*—A piece of paper which has been made to imbibe this oil, forms an excellent blister, which may be accommodated accurately to the shape of any part, however irregular. The vesication thus produced is so exactly circumscribed, that the blister formed corresponds with the sharpest angles which may be given to the paper employed. One drop is sufficient to make a blister the size of a quarter of a dollar, On such places where the skin is thicker or more solid than those which are less exposed and covered with clothing, it requires that the oil be applied two or three times in the course of one or two hours, or that the part to be blistered be covered rather more with the oil; this however will be seldom necessary, as blisters are most frequently applied on parts which do not require this particularity.

One ounce of this oil contains the vesicating properties of nearly one pound of cantharides. Its use is so mild that generally speaking it produces a blister without the least disagreeable sensation, except on those places where muscles, nerves. or tendons are in a state of compression. We trust an article possessing so many advantages will receive the sanction of the faculty.—*Ib.*

12. *Hermaphrodism.*—M. Rudolphi, in a memoir presented to the Academy of Sciences of Berlin, October 20th, 1825,, describes a case of Hermaphrodism of a very rare kind in the hnman species. It was m twith in the body of a child, who had died, as it was said, seven

days after birth, but the developement would lead to the supposition of its being three months of age. The penis was divided inferiorly; the right side of the scrotum contained a testicle, the left side was small and empty. There was a uterus which communicated at its superior and left portion with a fallopian tube, behind which was an ovary destitute of its ligament. On the right side there was neither fallopian tube, nor ovary, nor ligaments, but a true testicle, from the epididymis of which there arose a vasa deverentia. Below the uterus, there was a hard, flattened, ovoid body, which when divided, exhibited a cavity with thick parieties. The uterus terminated above, in the parietes of this body, and at the right the vasa deferentia, without however penetrating into its cavity. Finally, at its inferior part there was a true vagina which terminated in a cul-de-sac. The urethra opened into the bladder, which was normal. The anus, rectum, and the other organs were naturally formed. M. Rudolphi considers the ovoid body, situated beneath the uterus, as the prostate and vesiculæ seminales in a rudimental state.—*Am. Journ. of Med. Sciences.*

13. *Extraordinary Abstinence.*—A curious instance of this is related in the *Memorial Encyclopedique et Progressive des Connaissances Humaines* for September last. The subject of the case was a farmer of Gaillac-Toubzac, arondissement of Muret, named William Granie, thirty years of age, who murdered his wife on the 5th of April last, in the most brutal manner, and was imprisoned at Nuret, where he murdered his bed-fellow. Granie was then transferred to the prison of Toulouse. On the 15th of April he determined to starve himself to death. On the 24th of April the first appearances of emaciation were perceived, and on the 29th he was effected with general tremors. On the 30th he had sufficient strength to break the padlock which fixed his hand-cuffs. On the 18th of May he was affected with violent oppression. The 6th of June deglutition became difficult; the 12th the pulse was 89; the 17th violent convulsions occurred, which terminated this slow agony, which had continued for sixty-three days. During this interval G. only drank at intervals a little water, and sometimes his urine. Although taciturn in prison, he constantly answered to questions in such a manner as to remove all idea of mental derangement.

In our sixth volume, p. 543, will be found an account of a case in which a man lived on water for 54 days.—*Ib.*

14. *On Inflammation of the Medullary Tissue of the long Bones.*—M. Reynaud, of Paris, the author of a paper which has just appeared with the preceding title, professes to have taken up the subject not so much with the view of giving a full treatise on it, as for the purpose of calling the attention of surgeons to a disease apparently of great frequency, and probably of much importance as the sequela of operations on the extremities. The reader may conceive the consequence attached by M. Reynaud to a thorough inquiry into all its relations, when it is added that in one of the great hospitals in the course of two years, every case of amputation of the thigh proved fatal, and in every

instance was inflammation of the Medullary tissue of the remaining part of the thigh-bone found after death either singly or in conjunction with other morbid appearances.

The cases he has brought forward in illustration of the general principles which will be presently stated, are five in number; for, with a considerate attention to his reader's leisure and patience, not often met with among French pathological writers of the present day, he informs us that the numerous additional cases he might have likewise detailed, would not enable him to go further in his inferences, or to explain better the phenomena of the disease, than the examples which he has published, and of which we shall communicate the following short analysis. *Case I.* The first he considers an illustrative example of the inflamatory state of the medullary tissue in its lowest degree, such as is necessary to the production of callus on the end of the divided bone after amputation. The patient was a young man, whose arm was removed by M. Boux, on account of extensive disease of the elbow-joint. The operation was short, two ligatures only were applied, the stump next morning had healed by the first intention, and in a short time the ligatures came away, and cicatrization was completed. The Patient nevertheless continued languid, depressed and feverish; in a few days the left thigh and leg became painful and doughy; the right knee then became enlarged and obviously contained fluid; the fever in the mean time increased, and dry tongue, total prostration, and slight delirium ushered in death. On dissection there was found great serous infiltration of the left thigh, a little pus at the upper part of the tibia, the saphena vein thickened and red, and containing pus, the crural vein obliterated by a clot resembling in colour and consistence thick chocolate; purulent effusion into the right knee-joint, with redness of the synovial membrane; bloody injection of the dura-matral archanoid with a very thin layer of purulent-like effusion and serous infiltration of the pia mater; a fatty state of the liver. On examining the stump, the cicatrix was found firm, except at a small point only; a semi-fibrous layer rested on the end of the bone, firmest next the bone, and forming a plug over the medullary canal; around the edge of the bone a ring of bony matter was formed, and a smaller bony ring was also formed on the edge of the medullary canal; almost the whole medullary membrane of the bone was of a reddish-brown color; the periosteum was healthy; clots of blood were found in the sub-scapulary veins, where they end in the axillary vein; but the other veins, as well as the artery, presented a natural appearance.—*Case II.* The next is an instance of inflammation of the crural vein after amputation of the thigh, where the medullary tissue was found in a state of more advanced inflammation. The particulars of the case before death are not given; it is merely observed that amputation was performed on account of a chronic disease of the knee-joint, and that the patient died in thirty days. On dissection, there was found thin effusion of flaky pus on the archanoid; numerous purulent points dispersed throughout the substance of the brain; a few tubercles in the lungs; a purulent cavity in the spleen; the crural vein of the stump

inflamed; the end of the bone denuded of its periosteum to a short distance upwards; the medullary tissue inflamed and purulent as high up as the separation of periosteum externally, and a considerable portion of the rest of it redder, denser, and less oily than natural.—*Case III.* This is an extremely interesting example of advanced inflammation of the whole medullary tissue of the bone. The patient, a lad, sixteen years of age, had a curved leg, and slight disease of the knee joint; and, together with his parents, insisted on having amputation performed to rid him of the incumbrance, although the surgeons of the hospital were averse to it. M. Boyer therefore amputated the limb at the usual situation above the knee-joint, and dressed the stump in the old French method. Every thing went on prosperously till the sixth day, on the morning of which M. Reynaud found him sitting in bed making caddis; but in the evening the countenance became yellow; delirium ensued during the night, and also diarrhoea; on the ninth day, the upper part of the thigh was much swelled, and on squeezing it, pus flowed profusely from the wound; acute pain in the stomach, hurried respiration, a short cough, fever, increased yellowness of the skin, and yellow tinging of all the secretions rapidly followed, and death took place on the tenth day. On dissection, the dura mater was found yellowish, and covered internally with a thin layer of lymp; a sero-purulent fluid was effused into the left pleural cavity; and the lungs were inflamed and infiltrated with pus. The veins proceeding from the stump were inflamed and contained pus as high up as the iliacs; the muscles near the flaps were infiltrated with a sero-gelatinous fluid; the periosteum was detached from the bone as high up as the greater trochanter; the bone was yellowish and surrounded by pus. The medullary tissue was inflamed and in a state of suppuration up to the very termination of the medullary canal.—*Case IV.* is an instance of extensive inflammation of the medullary tissue, without any other material diseased appearance in the body. Amputation of the thigh was performed by M. Roux on account of an old inveterate disease of the knee joint; the stump was dressed so as to heal by the first intention; and for fifteen days nothing occurred to disturb recovery. But then the stump became painful, the patient complained of the dressings being always too tight, and was very restless; subsequently strong fever set in, the breathing became frequent, and death supervened, without any particular symptom referable to the stump, except increasing and extreme tenderness, with diminution of the discharge. The appearances found on dissection were confined to the limb operated on. The soft parts were united except at one point, where there was an opening down to a purulent cavity round the end of the bone. The bone was denuded of its periosteum two inches up in front, and half an inch higher behind; above this it adhered to a thin layer of recently formed bone; and still higher it was still connected with the original bone, but more loosely than usual, and without any appearance of uniting vessels when it was stripped off. The extremity of the medullary tissue formed a brownish-white, spongy mass, infiltrated witb pus, and plug-

ging up the cavity in the bone; above this plug there was a purulent cavity extending as high as the level of the trochanter—the pus lying in contact with the bone posteriorly, but separated from it anteriorly by a layer of tissue infiltrated with pus: and the cavity communicated outwardly by a small aperture. The cells of the spongy tissue of the bone above the medullary cavity were lined by a deep red membrane, and filled with pus. The pus was every where very fetid. The substance of the bone was unusually thick in front and thin before; its outer surface, instead of being smooth, shining, moist, and slightly rosy, was dry, white and dull; and its texture, as was seen when it was broken across, appeared unusually white and presented none of the red spots which are seen in a healthy bone after the laceration of its connecting blood-vessels.—*Case V.* is a similar instance of very extensive and advanced inflammation of the medullary tissue, united with various other morbid appearances. Amputation was performed on account of white swelling of the knee-joint. An attempt to heal the stump by the first intention failed; and profuse suppuration took place; but methodical compression gradually produced almost complete union. From the second day, however, violent fever set in, cough with thick expectoration followed, diarrhœa next appeared, and then yellowness of the skin before death. On dissection, the dura mater was found yellowish in color, and lined internally by a pseudo-membranous effusion; the left lung in the incipient stage of carnification, the right much gorged, and a purulent cavity at its base; and the pericardium containing some serum and a thin layer of lymph on both its surfaces. The flaps of the stump adhered partially. There was a purulent cavity at the end of the bone. The femoral artery contained pus towards its divided extremity. The femoral vein was throughout its whole course thickened, surrounded with brittle cellular tissue, lined with a pseudo-membrane internally, and filled with pus. The end of the bone was denuded of its periosteum to a short distance upwards, and the rest of this membrane was more easily stripped off than usual; but the surface and internal structure of the the bone, except just at its extremity where the periosteum had been separated, was of the natural smoothness and redness. The lower end of the medullary tissue was prominent, black, and purulent, and it was in a state of fetid suppuration throughout the whole cavity of the bone. In the general summary with which M. Reynaud concludes his paper, he observes that the frequency with which inflammation of the medullary tissue has been met with in the long bones after amputation, shows that there is some connexion between the disease and the injury done to this tissue by the saw, and he therefore throws out the hint whether it is not advisable to use some precautions for rendering the incision through the cavity of the bone smoother than it is commonly made, and likewise to cover it more closely with the soft parts of the flap. He considers himself justified in inferring from his cases, that the stripping of the periosteum from the bone is produced by an advanced state of inflammation of the medullary tissue, and that the extent of the one is generally conformable with that of

the other. He is not satisfied he is yet able to point out the symptoms of the disease he describes, but says he would be inclined to suspect it wherever there is a general doughiness of the stump without external redness or other signs of inflammation—when a large quantity of matter may be squeezed out of the stump, which cannot be accounted for from the extent of the remaining sore—when there is acute, deep-seated pain, felt during the first dressings, and accompanied with extreme tenderness of the stump—and when there is yellowness of the stump, acidity of the breath, and general fever.

There appears little doubt that the subject of the author's paper has not hitherto been sufficiently attended to by surgeons, and is deserving of more notice. Some allusion to it has been made by M. Ribes, in the article Necrosis in the Dictionnaire des Sciences Medicales, and more lately by M. Blandin in the article Amputation in the Dictionnaire de Medecine et de Chirurgie Pratiques.—*Ed. Med. and Surg. Journ. Oct. and Arshives Generales, June,* 1831.

15. *Tetanus from Inflammation of the Spinal Cord*—An interesting case of this is related by M. Combette, in the *Archives Generales,* for June last. The subject of it was a healthy elderly woman, accustomed to field labor. She was seized without any apparent cause with acute pain in the loins, along the back, and almost immediately afterwards with a general and extreme rigidity, by which she was deprived of the use of her limbs. Five days afterwards she was admitted into the hospital St. Antoine, at which time there was a general contraction of the muscles, semiflexion of the forearms, with extreme difficulty in extending them, extension of the limbs with impossibility of bending them, and constant closure of the jaw, extreme difficulty and pain in speaking, difficult deglutition, redness of the features, suffusion of the eyes, fulness and hardness of the pulse, considerable frequency and some labor of respiration, and perfect preservation of consciousness. She was immediately and freely bled. Next morning her state was unaltered; and she screamed aloud when she was touched or any attempt was made to move her. The blood was buffy. Stimulant draughts were now given, with a drachm of laudanum, blood was withdrawn from the loins by cupping, cataplasms were applied to the back, and opiate friction used over the body generally. In the evening no change had taken place, except that deglutition had become much more difficult. At midnight the breathing was laborious and accompanied with mucous rattle and frothing at the mouth. Sopor now appeared interrupted, however, by screams when she was meddled with. The pulse continuing full and strong, and the countenance flushed. She was again freely bled, after which she expressed herself relieved. Her attendant then urged her to take one of her draughts, which she was very unwilling to do; she at length yielded; but immediately the contractions were much increased; violent convulsions ensued, and in this state she expired.

On dissection, thirty hours after death, there was found great rigidity of the extremities; vascularity of the cerebral membranes, and

somewhat more redness of the cerebral texture than is natural; much serum in the canal of the spine; the spinal membranes, and particularly the inside of the dura mater, of a bright rose-red color; the surface of the cord covered with a net-work of vessels; softening of the anterior part of the cord, so as to present no resistance to the knife, and to form indeed throughout its whole length, a soft semi-liquid pulp of a lively rose color, especially in the cervical and lumbar regions, where some spots of extravasation were also seen; no deviation from the healthy state of the posterior part of the cord; no particular appearance at the origins of the anterior or posterior nerves; the pneumogastric nerves and cervical ganglions of the sympathetic nerve in a healthy state; the lungs gorged, especially at their base and posteriorly; the mucous membrane of the stomach of a pale yellow tint, with some red points here and there; the other internal viscera healthy.

16. *Small Pox.*—During the last eighteen months M. Louis has had the opportunity of examining the bodies of fifteen patients who died of small pox. In eleven of these he found in the bronchia either a false membrane, or a collection of pus or blood. In one-third of the cases there was a morbid development of the glands of Brunner forming exanthematous pustules. In no case were the elliptical plates altered. —*Gazette Medicale, June 25th,* 1831.

17. *Pustules in the Intestines caused by the internal administration of Tartar Emetic.*—M. Guerard says that he has met with, in two persons treated by large doses of tartar emetic, pustules similar to those produced on the skin by the application to it of that article. These pustules occupied a considerable portion of the intestinal canal; there existed besides no sign of dothinenteritis. The stomach was healthy.—*Ibid.*

18. *Aneurism of the Right Axillary Artery cured by Tying the Subclavian Artery.*—The subject of this case was a man sixty-three years of age. The tumor presented the section of an oblate spheroid, of about the size of a large orange; it extended from the clavicle into the axilla, and was attended with considerable unremitting pain almost utterly precluding sleep. The disease was attributed to a hurt received some time before; on careful examination, no disease of any other artery or of the heart was discoverable. The operation was performed on the 17th Dec. 1830.

"Sixty minims of laudanum were given immediately after the operation and which dose was repeated an hour or two afterwards, but without producing any considerable relief. The same night, the patient complaining of increase of pain in the wound, with considerable difficulty of deglutition, and some dispnœa, and a severe pain extending from the left hypochondrium to the right shoulder, he was bled to the extent of oz.xviij. and which operation was repeated the following morning, in both instances, with the greatest possible relief. He was of course restricted to a rigidly antiphlogistic diet and regimen, and

the bowels relieved by repeated doses of a saline aperient, combined with antimony, preceded over night by an alterative aperient pill.

"From the above date, little remains to be observed, as to the mere history of the case, excepting that the above symptoms, though decreasing in violence, continuing from time to time to recur, were obviated, or reduced by various modifications of the same means; while, in addition, local painful affections were relieved successively, by the employment of warm spirituous fomentations, liniments, dry friction, the use of flannel, and the last ten days by the warm bath.

"The last ligature came away on the twenty-ninth of January and there now remains only the most minute moisture on the spot from which it escaped."

The operator and narrator of this case, W. Bland, Esq. attributes its successful issue in a particular manner, to the very early and repeated employment of the lancet, the use of spirituous fomentations to the limb, and the support given to it, by means of a broad flannel sling, by which the arm was steadily supported without sustaining any disagreeable pressure: this, in a case of unavoidable long duration, though apparently trivial in itself, was a matter of great moment. There is yet another circumstance, he adds, to which I shall beg to call attention: the careful, but gentlest possible expulsion, by means of pressure, of as much of the discharge as practicable, from the wound, each time that it is dressed; by which the danger to be dreaded from the unpropitious direction of the external opening of the wound, (which instead of being in a depending situation, is at all times almost perpendicular above its fundus), is in a great measure, if not entirely obviated.

There was a very slight expectoration of blood, on the 5th of this month, (February) but which was immediately obviated by bleeding, and has neither returned nor evinced any tendency to return.—*Lond. Med. and Surg. Journ. Oct.* 1831.

19. *Is the Meat of Diseased Animals unwholesome?*—The following remarks on this subject, from the *Gazette Medicale*, for 20th of August last, though far from satisfying us of the innoxiousness of the meat of diseased animals, are nevertheless worthy of consideration. The subject is an interesting one, and should receive more attention than has hitherto been bestowed on it.

Among the investigations which the central council of health for the department du Nord has included in its report for 1830, to the prefect of Lille, there is a question which appears to us of very great interest, namely, whether the meat of kine attacked with tuberculous affections proves injurious to the health of individuals eating it? The facts which led to this inquiry occurred recently in the Lille butchery; some of them are as follows:—In the middle of last January, a cow brought to market was suspected of being effected with the aforesaid disorder,, and the police having been informed of it, summoned Messrs. Pommeret, a veterinary surgeon, and Simon Pers, a merchant butch-

er, both considered skilful in their avocations. After having examined the animal with great care, M. Pommeret declared it to be affected with the tuberculous disorder, which affection was limited to the lungs and pleuro-costales, and appeared to have no connexion with other parts of the system: he was convinced that the animal in question, although slightly affected with tubercules, might be used as aliment, without producing any inconvenience to health.

Simon Pers, the butcher, declared that the cow had its lungs and sides covered with small pimples, (boutons,) which constituted the disease called leprosy, on which account he thought its meat should not be exposed to sale, but buried, as not being fit aliment for man.

After this discordance in the opinions of two persons, both regarded as expert, the police called upon a third, who gave it as his opinion, that as the tuberculous affection was confined to the lungs and pleura, all other parts of the system appearing sound, the sale of the meat should be permitted, which was accordingly done.

A few days previous, a similar case occurred. A cow having been pronounced to be affected with a leprosy and gangrene, was ordered to be buried. Messrs. Pommeret and Loiset, veterinary surgeons, repelled the charge of leprosy, none of the peculiar symptoms of which were found in the cow when examined, and which, besides, are only met with in swine. The designation of corrupted, (pourri,) which had been given to the animal, was considered by them as absurd and ridiculous, as they only recognized upon it a tuberculous affection, without any trace of other disease, and decided that the meat of the animal might be used as food without any inconvenience, and that permission to sell it should be given, which was accordingly granted.

These two facts go to prove, that at Lille, in the course of a few days, two cows, recognized as unquestionably laboring under the tuberculous disorder, have been used as nourishment by many hundreds of people, without causing any complaint. It is also well established that this disorder is of more frequent occurrence than is generally supposed, especially in winter. It is fair to infer from this, that the meat of animals may be eaten without risk, whatever disease they may have when killed? The author of the report replies to this question by adducing the following facts:—

In all the large towns, and more particularly in Paris, dogs, and especially the valuable wild animals in the royal menagerie, are fed almost solely upon the flesh of horses.

Now, many of these horses are not only sick when slain, but are brought to the place after having already died of diseases; all are cut up alike, and made use of without giving rise to any inconvenience.

During the revolution, the professors of the school of Alfort, near Paris, caused a great number of horses, affected with farcie and glanders, to be taken into the forest of Vincennes, and there slain. The flesh of these was all eaten as fast as they came, by the inhabitants of

the neighboring villages, who, nevertheless, remained free from any disease.

In the year 1737, the following fact was communicated to the Institute, by M. Hamel. A herd of cattle on its way from Limousin, stopped at an inn at Pitiviers, in Gatinois; one of the finest not being able to go further, was sold to a butcher, who killed it at the inn. The butcher's boy having placed his knife between his teeth, his tongue swelled, and he died five days afterwards, with a general gangrene. The innkeeper, who received a cut on one of his fingers, was attacked with a swelling on his arm, and died at the end of a week. His wife, who had received some of the blood upon the hand, had a tumor formed on this part, and recovered with difficulty. Finally, a surgeon, who had opened one of the tumors, and placed his lancet between his wig and forehead, was attacked in this part with an erysipelas, which lasted a long time. Notwithstanding all this, said Hamel, all the meat of this animal was sold, and chiefly to the richest families; more than a hundred persons who eat of it, both roasted and boiled, found it excellent, and no one experienced the slightest inconvenience.

A dog, after having bitten seven cows, died a short time after with confirmed madness. Other dogs which he had bitten, were killed on showing indications of the same disease. The cows mentioned soon exhibited symptoms of madness, notwithstanding which, they were butchered and distributed to customers, without either the milk, which had been drawn up to the time they were killed, or the meat having occasioned the least complaint from any of the inhabitants of Montargis, the village where this circumstance occurred.

In 1814, the allied troops carried in their march large flocks of cattle which they had pillaged. These having been over driven and badly attended to, were all seized with intense inflammation of the stomach, intestines, and liver. This disorder became contagious, and spread its ravages through the whole country, traversed by the army, especially at Paris and its environs. But the meat of none of the animals which died or labored under this disorder, was suffered to be lost, all of it having been eaten by the strangers, citizens, soldiers, and lower classes: it was even consumed in the hospital. Neverthe less, there were no bad effects upon the health of individuals observed, and on the contrary, the typhus, which had preceded this epidemic, disappeared.

In 1815, the epidemic which occurred at the commencement of summer, continued till January, 1816. During six months of this epizootic, the allied troops received in their rations no other meat than that of animals that had labored under typhus. On no table was any other meat eaten, but such as came from sick animals, and yet no persons were incommoded.

We have extracted from the report of the members of the Central Council, a case of each of the diseases most common among herbivorous animals: these having been reported by persons worthy of credit, we conclude with the authors of the memoir, that the reprobation attached to animals killed in a state of disease, and the repugnance

universally manifested to eating their flesh from a persuasion of its being noxious to health, are altogether prejudices, which, for the interest of trade and the general welfare of man, should be done away. This is likewise the opinion of Messrs. Huzard, Darcet, Chaberet, Flandrin, Dupuy, and of a host of other savans, who have given particular attention to matters relating to public hygiene.

20. *The Use of the Trephine in Epilepsy.*—The following interesting case has been furnished us by Professor Dudley, being the sixth of the sort which has occurred in his hands. The other five cases were related in his paper on "Injuries of the head," published in the first number of this Journal. The success of this practice establishes two important principles in Surgery;—1st, That the brain will bear severe mechanical irritation for a great length of time, without fatal disorganization; and 2dly, that the use of the trephine under such circumstances may restore the organ to its former healthy condition. The cases of Mr. Cline, first published, we believe, in the paper just referred to, bear only a slight resemblance to those of Prof. D., and are not meant by him, or by Sir Astley Cooper, who has since noticed them, to establish those principles so valuable in practice.

Mr. ——— received a gun-shot wound on the head in the month of March, 1832. On examination next day, his physician took from the wound a number of small bones, when, by reason of an injury done the dura mater, some brain escaped. So soon as the bones with the disorganized brain were removed, he was dressed, and at the expiration of two months he was thought to be well. The patient states, however, that a slight discharge continued to issue from the wound, and after some months Epileptic convulsions, with a great derangement of the general health, ensued. It was then discovered, on examination, that the matter issued from the surface of the brain, and that the cranium appeared to be diseased. Under these circumstances he came to Lexington for assistance, his friend having furnished the preceding narrative.

On his arrival here his general aspect was that of an individual, who had suffered greatly from derangement of the cerebral and chylopoietic functions. A cicatrix of two and a half inches in length, on the central and posterior portion of the right parietal bone, pointed out the original injury.

On two points of the cicatrix were discovered small sinuous orifices, from whence was discharged an unhealthy pus. By the aid of a common probe diseased bone was detected.

The trephine was applied in the direction, and on one side of the original fracture. So soon as the segment of bone was removed by the trephine, isolated portions of bone were discovered beneath the dura mater, in a cavity of some dimensions occasioned by the absorption of the brain. Three of these, amounting in size to the thumb and finger nails, were removed, together with a morbid growth from the surface of the wounded dura mater. Simple dressings were then

applied, and renewed occasionally for the week, when the patient was discharged, free from all embarrassment, both in the corporeal and intellectual functions.—*Transylvania Journal of Medicine.*

21. *A Case of Hereditary Hæmorrhagic Tendency.* By Dr. Hughes, of Simpsonville, Ky.—In the IVth vol. of this Journal, page 518, I gave an account of a case of Hereditary Hæmorrhagic Tendency, ascertained to be universal among the male members of the family in which it exists; the females being, at the same time, as universally exempt from it. Since the publication of this case, I have met with one of the same character, in another and entirely different family, a succinct history of which I propose now to give, simply for the purpose of calling the attention of the profession more particularly to this singular disease, for such it should undoubtedly be considered.

On visiting the house of a respectable farmer of this neighborhood, my attention was directed to the case of a youth ten or twelve years old, which appeared to be rheumatic, and which was so pronounced. The correctness of my opinion was called in question by an old lady present, who was herself a member of the family, and intimately acquainted with the history of the case. On further inquiry I ascertained it to be one of hereditary origin, the rheumatism being only the sequel of another affection to which the boy had been subject from infancy, viz. hæmorrhage. Learning that the disease was common in every branch of the N. family, of which that of my friend Mr. P. was one, I inquired particularly concerning it, when the following facts were communicated:

1st. That spitting, vomiting and purging of blood; bloody urine; bleeding at the nose; extravasations of blood among the muscles and integuments of the body generally, especially of the extremities, producing dark discolorations and swelling, attended frequently, after a few days' continuance, with obtuse pain and stiffness, and copious and obstinate hæmorrhage from very inconsiderable incisions, on whatever part of the body they are made, have been exceedingly common among the male members of the connection.

2d. That the Hæmorrhage, whenever it has manifested itself, has been invariably attended with rheumatism to a greater or less extent.

3d. That the slightest sprains or contusions have generally been followed by rheumatism of the part.

4th. That the majority of the males, who have arrived at old age, have been much disabled by rheumatism.

5th. That on the approach of old age, the tendency to hæmorrhage has been less manifest.

6th. That a considerable number of the males have died in infancy and childhood.

7th. That deaths immediately from the loss of blood have been frequent; several resulting from the employment of the lancet, some from accidental wounds, others from various internal hæmorrhages,

and two of the number, simply from the application of blisters—"*the blisters*" in the language of my informant "*drawing blood instead of water.*"

8th. That, of the two diseases, hæmorrhage and rheumatism, the former has always maintained the priority.

9th. That the females, though in no instance sufferers from this predisposition, have, nevertheless, invariably transmitted it to their offspring.

And 10th. That the predisposition in question can be satisfactorily traced as far back as the fourth and fifth generation.

We present the above as facts, upon the authority of several intelligent and highly reputable members of the family to which they relate; a personal acquaintance with whom, enables us to repose the utmost confidence in their communications.—*Ib.*

22. *Analysis of the Sulphur Springs at Nashville.*—The water of this Spring was first analyzed by the late Prof. Bowen. It has since been examined by other chemists, and is found to contain the following ingredients:

Gases.

1. *Carbonic acid.*
2. *Sulphurated hydrogen.*

Solid Ingredients.

1. *Muriate of Soda*, (abundant)
2. Muriate of Magnesia,
3. Muriate of Lime,
4. Carbonate of Lime,
5. Sulphate of Lime,
6. Sulphate of Magnesia.

In composition it corresponds very closely with the famous Harrogate springs of England, the most abundant substance in which is muriate of soda.

The use of this water has been beneficial in dyspepsia, liver complaints, and other chronic visceral diseases.—*Ib.*

23. *A Class of Abortives.*—There exists a very strange notion among most people, that there is, in our materia medica, a class of medicines with the power of producing abortion. No such class most assuredly has ever found place there, nor is any medicine known which possesses this power. Slight as the causes are which occasion miscarriage in persons strongly predisposed to it, there is no article which exerts sufficient influence over the uterine apparatus, to bring about this condition where the predisposition does not exist. No fact is probably better established than this, and why it is that certain articles have a reputation for such efficacy, it is difficult to imagine.

A controversy on this subject has attracted our notice in an English journal, and, in the course of it, we remarked particularly some very just views expressed of the precise efficacy of the secale cornutum, a medicine of great value, the medicinal virtues of which were origin-

ally discovered in this country, (by Dr. Prescott, we believe, of Newburyport,) and which is but just beginning to be well understood abroad.

Because ergot exerts so decided and immediate and unquestionable an influence over the efforts of the uterus during parturition, an impression has gone abroad, even among medical men, that it is capable of *inducing* uterine contraction de novo. The fact is that ergot has in all probability no effect over this organ, except during paturition. This sentiment was expressed in the second volume of this Journal, and from subsequent observation, we are induced to believe it will prove correct. It receives confirmation from the universal failure of medicine to induce pain, *after the completion of labor*, and from the extremely various and contradictory accounts of its supposed effects *before its commencement.* It is also confirmed by analogy, as set forth by Dr. Venables in the controversy alluded to.

"I know," says he, "that this drug is often administered to quicken the tardy and languid operations of the uterus, and no doubt, in some instances, with advantage. But there is a wide difference between assisting, and wholly preventing the natural functions of the organic system. The languid uterus may be excited to a more vigorous performance of its natural functions by a proper and judicious exhibition of such a medicine; but from what analogies can we infer that a natural operation is to be perverted or arrested, and an unnatural one substituted in its stead?"

Certain it is that some females, who have had reason to adopt every method they supposed to promise any thing toward producing this effect, have undergone severe and repeated vomiting, drastic purging, and various other operations, without success:—preferring even death to the inevitable consequences of a failure in their object, they have swallowed the most disgusting and powerful drugs—oils, essences, and decoctions—to the imminent hazard of life; and yet, after all been compelled to suffer disappointment, and submit, however unwilling, to the just punishment of their crime. Cases of this kind show us the difficulty, if not impossibility, of bringing on uterine contraction by any known medicine, where a predisposition to it does not exist. A like view of the subject has been taken by most authors.

"Every woman who attempts to promote abortion, does it at the hazard of her life."—*Bartley.*

"There is no drug which will produce miscarriage in women who are not predisposed to it, without acting violently on their system, and probably endangering their lives."—*Male.*

"It has frequently occurred that the unhappy mother has herself been the sacrifice, while the object intended has not been accomplished."—*Dr. G. Smith.*

"But we must conclude that there is no medicine, or abortive means, which always produce abortion, and nothing but abortion; there is none which does not endanger the lives of the mother and infant."—*Ryan*, p. 154.

"Now we shall have occasion hereafter, to show that medicines, internally administered, can seldom produce abortion"—*Paris and Fonblanque*, vol. iii. p. 90.

And again—

"From a very early period attempts have been made to devise means of producing abortion, by the administration of certain drugs, which were considered as capable of acting specifically upon the womb, and of occasioning the exclusion (expulsion?) of its contents. It would be idle to enumerate the various substances which have, at different times, been employed for such a purpose, not a few of which were derived from the fertile sources of credulity and superstition; and yet we are bound to admit, that upon this occasion, at least, credulity has proved a blessing to mankind, by suggesting the substitution of a harmless amulet, or an inefficacious drug, for an application of extreme violence and danger, and perhaps of death. *The physicians of the present age disclaim the existence of any specific class of abortives;* but we are ready to admit that the administration of violent medicines, by *involving* the *uterus* in the *general shock* thus given to the system, will occasion abortion, *provided there exist* at the same time *a certain predisposition* on the part of the female: should this latter condition, however, be wanting, the *poculum abortionis* may, by the violence of its operation, *destroy the life of the unhappy mother*, or very materially injure her, without *accomplishing* the object for which it was administered."

Burns, too, after speaking of the secondary effect sometimes attributed to strong cathartics, which induce tenesmus and inflammation of the stomach and bowels, takes care to add, that "it cannot be too generally known that when these medicines do produce abortion, the mother will seldom survive their effect."

The above authorities are all cited by Dr. V., and, in addition to them, he brings the evidence of his own experience, which is the evidence of an accoucheur well skilled and long practised in every branch of the obstetric art.—*Boston Med. and Surg. Jour.*

24. *Tenacity of Vegetable Life.*—Mr. Houlton produced a bulbous root to the Medico-Botanical Society, which was discovered in the hand of an Egyptian Mummy, in which it had probably remained for two thousand years. It germinated on exposure to the atmosphere; when placed in the earth it grew with great rapidity.—*Ann. de Chim.*

25. *On the Identity of Smallpox and Cowpox, and on a mode of inducing the Vaccine Pustule in the Cow at pleasure.*—In our last, we offered some account of the researches of Dr. Sunderland and others on the mode of producing the variolous or vaccine disease in the cow. The following are the conclusions to which Dr. S. has arrived, and which we offer in order to present a clear and explicit view of the result of his inquiries on a subject of deep interest to the profession and the public.—*Bost. Med. and Surg. Journ.*

"1. This discovery is new; for, although many have suspected the identity of smallpox in man and cowpox in the cow, and have in

consequence performed inoculation with the matter of both, yet no one has previously ascertained the possibility of transmitting the contagion to the cow in the gaseous form, so as to decide the question beyond all doubt.

"2. The desire of Physicians and governments to discover cowpox in cows, in order to revive the vaccine lymph, is more than fulfilled by the discovery of a simple method of engendering cowpox in the cow at will.

"3. Jenner's discovery of the protective power of vaccination, hitherto imperfect, is now perfected, because the hitherto unknown nature and origin of cowpox are laid open.

"4. All previous uncertainty regarding the quality of vaccine matter, its degeneration, the loss of its protective property, and the like, must now cease, because we have obtained a clear insight into the nature of cowpox, and can lay down a substantial theory of its operation.

"5. This discovery must tend to widen the boundaries of physiology, pathology, and therapeutics, since it shows how the subtle contagion of smallpox, so hostile to the nervous system of man, may be conveyed in the aeriform state from him to the cow, excite in that animal a similar disease, but in doing so, be changed by the special constitution of this class of animals into a permanent contagion of a different kind.

"6. An instructive lesson may be drawn from this discovery how the poison of diseases in the gaseous form may be communicated to the lower animals, and according to the difference in their constitution engender diversified products, which may then be used as a protective means against the diseases from which they originated. Such, for example, may be subsequently proved of scarlet fever, measles, yellow fever and plague.

"7. It is now clear why in recent times smallpox has been seldom or never seen in the cow. For the cowpox of the cow arises merely from infection by the variolous exhalations from men recently affected with smallpox, and coming in contact with the cow. As epidemics of smallpox have been rare during the last thirty years, cows could seldom be exposed to infection, and have therefore seldom exhibited the disease."

26. *Influence of Atmospheric Electricity on the Eyes.*—We see peculiar appearances in weak and morbidly sensitive eyes, before the breaking out of a violent storm, showing the positive influence of an atmosphere which has now attained its maximum of electricity; and I am acquainted with several persons who are able, from a certain premonitory feeling of their weak eyes, to predict a thunder-storm infallibly, a considerable time beforehand. As every experienced oculist is convinced of the bad effects of an atmosphere of this kind, he will never extract the cataract during the approach of a thunder-storm. —Beer, *Lehre von den Augenkrankheiten*, 72.

Epidemic Cholera.—An Eclectic Review.

Concluded from page 616.

3. Calomel and Purgatives.—As indulgence in eating, is often the exciting cause of Cholera, the stomach and bowels at the onset of the disease, are generally surcharged with recremental matters. Experience has demonstrated, that spontaneons vomiting and diarrhœa do not necessarily rid the canal of these ingesta. Barley water dejections, may continue for hours, and the mucous membrane still remain oppressed and irritated, by half digested aliment. On the early removal of such matters from the stomach, much of the efficacy of emetics manifestly depends. It is equally important to expel them from the bowels; and whenever the alvine evacuations have not been copious and fæculent, cathartics are required. The greatest difficulty in their use, arises from the irritable state of the stomach. That which irritates least, and at the same time is most difficult to expel, is calomel. It may be slow, however, in passing the pylorus, for the action of the stomach is far from favoring its advancement. Should it reach the duodenum, its effects must generally prove beneficial. All the world know, that few remedial agents act so powerfully on the portal viscera; and few things, in clinical medicine, are better ascertained, than the efficacy of this medicine in sporadic and endemic cholera. In the terrible malady now under review, it has disappointed no reasonable expectations. Mr. Searle is its eulogist, and his citations of the experience of others, speak greatly in its favour. It has been given in every variety of dose, from one to twenty or thirty grains, every two or three hours. For ourselves, we have generally seen large portions, at distant intervals, more efficient, in quieting the stomach, and correcting the morbid secretions, than small doses frequently administered. It should be given in powder instead of pills, which are more easily thrown up. Camphor or aromatics, sometimes reconcile the stomach to its impress and are peculiarly proper when the prostration is great. But the most useful adjuvant is opium, of which we shall presently speak.

Other cathartics, than calomel, have been employed, of which the chief are Epsom salt, ol. ricini, and magnesia, the last,

especially when the excretions give evidence of acidity. Small and repeated doses of these medicines, seem to succeed better than large portions, Mr. Searle has collected from the practitioners of India, or rather from their Bengal and Madrass reports, a considerable mass of testimony, in favour of this class of medicines, and is lead by its perusal to offer the following remarks:—

Purgatives—this section renders it very clear, that these remedies have not been duly appreciated; on the contrary, the aqueous purging which has been so generally present, and so frequently the first symptom complained of, having led to the inference, that the extreme languor, and depression of the powers of life were in no inconsiderable degree dependant on this symptom as a cause—a primary object of practice arising out of this view, has been, to arrest this evacuation, and to suppress the action of the bowels, as well as of the stomach: but the error of this system I think I have already rendered apparent, if not, the testimony here adduced bears ample proof in favor of the opposite practice; and exhibits purgatives in the character of a most valuable auxiliary, indeed it would be astonishing, that we should have neglected a class of remedies so strongly recommended to us, by the success attending the exhibition of castor oil, by Mr. Duffin, in the same disease of 1787, and the testimony of Mr. Anderson, and other of the Practitioners of those days, in favor of bleeding, purging, and emetics; but for the fact, that our minds were all pre-engaged by the opium and stimulant plan, which was promulgated by authority, on the recommendation of Mr. Corbyn, with whom it was said to have proved so eminently successful.

We are not prepared to sanction copious and repeated purging. Among other sinister effects, it prevents perspiration. In the forming stage of the disease, it might be highly beneficial; in more advanced stages if carried to much extent it could scarcely fail to increase the exhaustion.

In many cases enemata are valuable. When a deficiency of fæculent evacuation, affords ground for suspecting accumulations in the great intestines, although watery discharges are perpetually occurring injections should never be omitted.

4. Antacids. Dr. Granville of London (not experienced in Epidemic Cholera) has published, on that malady, a Catechism for the use of the people. He speaks with great confidence of the virtues of an aromatic alkaline solution, the composition of which he keeps a secret. From the dose in which he directs

it, we may conjecture, that it is a solution of caustic potash, united into a liquid soap, with some kind of essential oil. However this may be, we should expect much in certain cases, from such a compound. Magnesia administered in new milk, by Mr. Scott of India, proved successful in some cases, even when the primæ viæ seemed free from acid. Mr. Searle supposes the benefit may be attributable to the milk. The effects observed by Mr. Scott certainly merit consideration.

5. Opium. From the time when Sydenham first poured out his "liquid laudanum," to the present hour, the preparations of opium have been stereotyped prescriptions for cholera. This certainly speaks much in their favour, as few medicines continue long to enjoy an *undeserved* reputation. In the choleras of America, no physician is ignorant of the excellent virtues of opium. Nearly 30 years ago, Dr. Edward Miller, of New York, recommended a combination of calomel and *opium* in the cholera of children; and for most of that time, we have been accustomed to employ it, with satisfactory success.

It appears, however, from the concurrent experience of a great number of practitioners, that the preparations of opium, have not often succeeded in Epidemic Cholera. Both laudanum and solid opium, have been administered in every variety of dose, but the results *on the whole*, have been unfavorable. The chief cause of failure, appears to be the engorged state of the brain—always augmented by narcotics; and keeping this in his eye, the physician will have little difficulty, in deciding on the cases which may or may not, admit of the use of this medicine. In full habits, its effects must of course be prejudicial, and, in most cases, it must follow, not precede venesection. Every experienced physician, knows that blood-letting is the proper predisposing measure for the use of opium. With due reference to the condition of the brain and bowels, this narcotic may undoubtedly be given with much comfort and advantage to the patient. Its power over spasmodic action, when not sustained by continued local irritation or cerebral congestion, is universally admitted; while its *indiscriminate* employment in Epidemic Cholera, or any other disease, must necessarily be attended with sinister effects.

We do not discover, that the salts of morphia have as yet received a fair trial. They might be found more beneficial than solid opium; as morphia is said to affect the brain less unfavorably, than narcotin.

We have so often witnessed the good effects of uniting opium with calomel, in the endemic cholera of this country, that we should be strongly tempted to try that compound, were the epidemic to visit us; always of course, preparing the patient for its exhibition by blood letting and purging.

6. Sudorifics. Epidemic Cholera is attended with such a signal failure of the functions of the skin, that sudorifics are obviously indicated. Some of the British practitioners, in India, have given tartarized antimony for this purpose, with advantage. This practice, at first view reprehensible, may perhaps be worthy of adoption. We should be disposed to recommend the medicine in large doses, combined with opium, in a solid form. In this manner, an antimonial action might be speedily established in the nervous and circulatory systems; which would generally be followed by increased secretion from the mucous membranes and skin. We should feel little apprehension of augmented vomiting from this practice. Ipecacuanha has, also, been employed with advantage, and probably operates as a diaphoretic. But neither of these remedies is adapted to a state of *exhaustion*, however admissible they may be in that of *depression*. We are not aware, that hot water in large draughts has been employed. Might it not prove beneficial? Would it not be absorbed, when the vomiting was not incessant, before its temperature was reduced to that of the body, and by its heat stimulate the heart and other indundated organs into more vigorous action?

7. Diffusible Stimulants. Brandy, camphor, cayenne pepper, the volatile oils of cajuput, peppermint, cloves, cinnamon, and other aromatics, sulphuric ether, and ammoniated alcohol, are among the active stimulants, which have been administered in Epidemic Cholera. The extreme prostration of the vital forces, would seem to call for prompt and powerful stimulation; but although it has often done good, it has still oftener failed, and not unfreqnently proved injurious. When the brain is

oppressed, this class of medicines make the matter worse; and in cases less congestive, but more inflammatory, they do harm, by the excitement they create. In persons previously enfeebled, or possessing the lymphatic temperament, they are most likely to prove beneficial; but even to these, they cannot be administered indiscriminately, with advantage; while to those of a sanguine temperament, and vigorous constitution, or whose bowels have ejected nothing but gruel like excretions, and are still loaded with fæculent matters, they cannot fail to do serious injury.

8. Tonics. The analogy between Epidemic Cholera and congestive intermittent fever, has occurred to many physicians, who have witnessed both diseases; and the known efficacy of the sulphate of quina in the latter, has suggested its use in the former. Dr. Hamett (Med. Chir. Rev.) advises its union with calomel. We have fouud the quina to lessen the frequency, and increase the fullness of the pulse, tranquilize the nervous system, and promote perspiration; effects, which, produced in cholera, could not fail to prove beneficial. Engorgements of the viscera, in malignant intermittents, constitute no prohibition to the use of this medicine; which more certainly relieves them than any other; and why then should it not be administered, in cholera attended with the same congestions? As to other tonics, they would seem to be indicated only, or chiefly, in the stage of convalescence.

9. External Applications. The centripetal tendency of the fluid in Epidemic Cholera, has suggested to the profession and the people, wherever it has prevailed, an early and persevering resort to external applications. When successfully used, they revive the sensibility of the skin; refill it with blood, and restore the lost functions of calorification and perspiration. In proportion as these effects are brought about, the internal organs are relieved of plethora and irritation; the heart and brain, being liberated, act with greater regularity and power; the secretions are revived, and the spasms cease; though certain parts may simultaneously pass into a state of serious inflammation.

Caloric has been the active agent in most of the internal applications which have been used. 1. The hot bath, made stimulating with salt, mustard, or ardent spirits. Although this has been lauded by some, the greater number of physicians have preferred other modes. The time necessary to the preparation of the bath; the absence in most families of a bathing tub, in which the patient can lie down; the danger of his sitting up; and the exhaustion of his strength in getting in and out of the bath, are practical objections of some moment; but it has been thought, that, independent of these, the liquid medium is less beneficial than a gaseous or solid. Hence, 2, hot air and the vapour of burning spirits, have been preferred by many practitioners. For applying the latter, the portable vapor bath of Dr. Jennings might be employed. 3. The patient, or his lower extremities only, may be surrounded with hot ears of Indian corn, or bags of hot meal or ashes. 4. Frictions, with dry and hot flannels, bags of dry sand or salt, rags dipped in spirit of turpentine or tincture of cantharides, or impregnated with powdered mustard; lastly, the warm hands of the attendants, unarmed with any medicinal agent. In most of these methods, the effects depend chiefly on the application of heat, but its efficacy is greatly augmented by friction; and, hence, of all the applications to the skin, those mentioned under the last head, seem to have been most beneficial. 5. Sinapisms, cataplasms with Cayenne pepper, and blisters, applied to the epigastrium, spine, and insides of the thighs and arms, are not to be omitted, except for more speedy and potent modes of stimulation. 6. In this Journal, Dr. Awl, of Ohio, has recommended from experience, when the limbs are cold and shrivelled, in endemic cholera, to cover them with tight flannel rollers, and saturate these with hot oil of turpentine; a powerful application certainly, and one which seems well adapted to the epidemic disease, in which the bandages, by compression, might tend to repress the spasms and cramps of the limbs.

Having, thus, given a general view of the remedies that have been found most efficient in the treatment of Epidemic Cholera, we shall refer to Mr. Searle for detailed instructions, as to their

application in ordinary cases, and close this part of our task with the following extract:

The patient, on the first symptom of affection, to be confined to the recumbent posture, in short be lain in bed, between a pair of warm blankets, in an open airy room—when, should there be symptoms of indigestion, or the stomach appear oppressed, it will be advisable to evacuate it, by the patient either drinking plentiful of warm water, or by what is better—a mustard emetic, which operates as a powerful and general stimulant on the system: two tablespoonsfull of the flour of mustard, or the same quantity of the powder, of the common black mustard seed,)which is to be procured in every bazaar in India, and which I found to be decidedly more active than the Europe flour) given in half a pint of pretty warm water, operates effectually in a few minutes, without inducing any subsequent feelings of exhaustion; on the contrary, the eyes sparkle, and a genial glow of warmth succeeds throughout the system, with proportionate increased vigor of the circulation.

After the operation of this, rather preparative measure—to the stomach's being placed in the best condition, to be acted upon by our remedies more particularly curative,—and in furtherance of the same, a warm clyster should be administered, consisting of a dessert spoonful of table-salt dissolved in a pint of warm water, and a spoonful of common, or castor oil; and the same should be repeated every half hour, or oftener—for by thus keeping the bowels excited, tranquility of the stomach is insured, and the consequent retention of our remedies—the chief of which, is calomel; but as this requires some time before it can be received into the system, and effect its operation—as the absorbing power of the stomach, or susceptibility to its influence—in this disease, the distinguishing character of which, being, the subduction of all the powers of life—is greatly diminished, it becomes necessary to give it in proportionately large doses, and at the same time, in aid of its operation, and in support of the living powers—to administer occasional cordials. A scruple of calomel in powder should therefore be placed upon the tongue, and the patient gargling his mouth with a little brandy and water, should swallow it; but it must be observed, the quantity of the latter should at no time exceed three tablespoonsful, which may be in the proportion of one of spirit, to two of hot water,—as a bulk of any fluid, in a delicate irritable state of the stomach, is invariably productive of its rejection.

If the case is urgent, the same dose of calomel may be repeated every hour; otherwise, in two hours; or if the patient is much improved, in half the quantity; and thus prolonging the interval, or reducing the quantity—it must be continued, according to the state of the patient, till bilious stools and urine are produced;—the spirit and water, or mulled wine, either; or where the system is very low, thirty drops of (sal volatile) aromatic spirits of ammonia. or of hartshorn in half a wine-glassful of water, may be singly, or alternately adminis-

tered, every quarter or half hour; with the precaution before given, to avoid oppressing the stomach by undue quantity.

In addition to these means, if the skin is cold, warm flannels should be constantly applied; or if the skin is damp and the patient suffers by cramps in his legs and arms, the parts may be well compressed, and rubbed with the flannels besprinkled with hot salt. We have yet omitted to mention a very important remedy, one capable of producing much good or no less harm—this is blood-letting—which if the patient is an European, or native of pretty robust habit, should be early resorted to—if the pulse admits of it, that is, if compared with another persons—it is of pretty moderate strength: the object to be bore in mind by bleeding in this case, is to excite, by removing oppression from the brain and circulation, and not to subdue the action of the heart, that it should be taken from the patient whilst continuing in the recumbent posture,—and here I must insist once for all, that on no account and for no purpose is the patient to be permitted to sit up, or leave the recumbent state, or sickness almost immediately takes place; the evacuations should therefore be received in a bed-pan or cloth; or the blood be taken from a rather small orifice, that, the stream being in consequence small, the system may have time to accommodate itself to the deprivation,—the effect of which, however, should be carefully watched—the operator keeping his finger during the time on the pulse, at the same time encouraging the patient by suitable conversation;—when, at the instant it is found to flag, without reference to the quantity withdrawn, whether much or little, the finger should be placed over the orifice; but it must be borne in mind, that fear, nausea, or sickness may occasion this result, that should the quantity taken have been small after a few minutes—if the pulse recovers its wonted strength, as it is an object to carry it to as great an extent as the circumstances of the patient admit—the finger may be removed from the orifice in the vein, and the blood allowed again to flow, with the precautions before specified; but should after a further small loss, the same result ensue, it is clear that any additional attempt at this time, would be injurious; though it may be afterwards practiced, as excitement becomes developed, either in relief of spasms, sense of burning heat in the stomach, or pain in the head, or oppression of breathing: and with the precautions I have given, may be frequently put into practice, and without the possibility of harm—but on the contrary with the happiest effect; for in this disease small bleedings in relief of the engorgement of the brain, stomach, and heart, are clearly and most forcibly indicated. The same intention is partially fulfilled by the clysters, but as warmth and excitement become developed, evinced too by the desire the patient has for cold water—these may be aided, or superceded by a weak and cold solution of Cheltenham, or Epsom salts, or of cream of tartar, with which the patient may be now indulged—in the quantity of a wine-glassful at a time, instead of the cordials—which would now prove injurious; these will not, however, supercede the calomel, the necessity for which still continues, not only till bilious stools are procured, but even then, though in

smaller doses, till healthy evacuations follow. It may, however now, on febrile symptoms taking place, be well to combine it, with an equal weight of James's fever, or antimonial powder, and give it, if it is preferred, in the form of pill; but mind if the calomel is thus combined, acids, such as cream of tartar, are not admissible, as an emetic compound would be the result. The calomel and antimonial powder we would now advise, in the proportion of two grains of each, every two hours, with a tea-spoonful of Epsom or Cheltenham salts, in a claret-glassful of water with every second dose, and if there is much thirst, the patient may at the same time be allowed, a wine-glassful of barley or cold water every half hour; and the same be continued, till the secretions of bile and urine are restored—when, and not before, may the patient be allowed some sustenance, the best of which will be *light* beef tea, or chicken broth, for it must be remembered, and borne in mind, during the convalescence, that in proportion to the feeble state of the patient, so is the stomach weak, and powers of digestion.

Many have an objection to salts, where this is the case, two table spoonsful of castor oil may be substituted, or a dose of rheubarb and magnesia when this is preferred. Should the operation of the purgative be attended with much exhaustion, it may be necessary to support the patient with some spiced broth, wine and water, or mulled wine; or it may even be necessary to moderate it if there is much sinking—by a dose, of from twenty to forty drops of laudanum; but this is providing against contingencies, which with moderate care and attention will seldom be found necessary.

The secretions from the bowels are now sometimes so exceedingly acrimonious, that in passing along the line of bowels, and from the anus, they produce, from extreme irritation—very considerable exhaustion; when this is the case it will be advisable, to inject an occasional emollient clyster, of starch or thick conjee water, with oil; to the first of which may be added a tea-spoonful of laudanum, and this repeated if necessary; at the same time hot flannels may be applied to the belly.

In the treatment recommended, we have had in view an ordinary attack of the disease, and coming on with symptoms of indigestion, or stomach derangement; should, however the disease, which it not unfrequently does, have made an insidious approach, under mask of a simple loose state of the bowels, and from the continuance of which, the patient is much exhausted; in a case of this sort it may be necessary to quiet the system, and arrest further action of the bowels, till a certain degree of excitement of the system becomes developed; this may be effected, by adding a grain of opium to the first dose of calomel, or an equal proportion (thirty drops) of laudanum; and which it may be necessary to repeat, but it is only under these and the like circumstances that opium can be recommended. The treatment in other respects becomes the same, save, that in such cases, rhubarb and magnesia, or castor oil is to be preferred to salts, in the stage wherein these are recommended; and that bleeding and clysters can only become necessary, in the relief of the symptoms we have pointed out, when

excitement becomes developed: excepting when there is experienced, a sense of oppression and distention about the stomach and bowels, when the clysters may be advisable; otherwise it is to be feared, the stomach will be effected with sickness, which will obviate all our attempts at relief. Should there be burning heat of stomach, while at the same time the body is death-like cold, it will be in vain to attempt resuscitation with stimulants, calomel is the only one admissible,—the stomach being in a state of inflammation, a scruple may be given every hour, and at the same time, as there is a great desire for cold water, and nature's craving should be respected, a table-spoonful or two may be allowed every five or ten minutes, but not more at a time, as the stomach is in this state very irritable, and were a quart to be given, it would not satisfy the patient, who would desire as much more five minutes afterwards; that this precaution is indispensable.—The clysters are also in this case to be continued; and should the sense of heat in the stomach be great, a dozen leeches may be applied over the part, and after their removal a flannel wrung out in warm water may be applied, and with this covering exposed to the air, so as to encourage a little evaporation if gateful to the feelings of the patient; it should however be observed, that the temperature be not too much reduced in this way.—If the pulse admits of it, or as general excitement becomes developed, bleeding may be resorted to, particularly if there are spasms, with the precautions I have already enjoined in having recourse to this remedy.

There is another remedy, simple in the extreme, always available, and speaking both from personal experience and observation, I may add, of powerful operation, which is the fan or hand punkah—it not only renews the air, but condenses it, and thus aiding the respiratory function, assists in no inconsiderable degree in supporting the actions of life: that I cannot too earnestly recommend its uninterrupted use from the earliest period of attack; it is at the same time exceedingly grateful to the patient. pp. 114—121.

IV. Prevention.—The extent to which we have already carried this article, requires that we should treat the present head with brevity. Until the cause of Epidemic Cholera shall be known, our means of prevention must be limited to the avoidance of such things, as are observed to favor its action on the body. Several of these have been noted in Asia and Europe, and are nearly the same, which in all countries, have, from time immemorial, been observed to impart activity to the unseen poisons which generate epidemics.

1. Exposure of the surface of the body to a cool and damp atmosphere, especially that of the night, after the intense heat of

the day. We have repeatedly known this to excite cholera infantum.

2. Living and lodging in close, damp and unventilated streets, in the midst of domestic filth.

3. Subsisting on a meagre and insufficient diet; a cause not likely to be operative in the United States, except among the slaves of the South. Long fasting in the morning, allied to the same cause in its effects, should be avoided.

4. Excess in eating. Cholera has repeatedly made its attack immediately after such indulgences, especially when crude, indigestible, ascescent, or irritating articles, have been ingurgitated, in bulk.

5. Intemperance in drinking. It is no assertion of our Temperance Societies, that drunkards have been found peculiarly liable to Epidemic Cholera. The most ample experience in Asia and the north of Europe, has demonstrated this important fact; which should be disseminated far and wide, not because it is likely to deter those who are prone to drunkenness, but because the theory of benevolent operations calls for its publication.

6. An irregular state of the bowels. This should be corrected by dietetic means; or the occasional use of a "blue pill" at bed time, and a little Epsom salt in the morning.

7. A bad state of the skin. This should be avoided by frequent ablutions, by frictions, and the use of thin flannel, or muslin next the surface throughout the summer. Passing a towel or sponge over the whole body, and then rubbing it dry with a coarse towel every morning, would promise much for the same purpose.

8. Apprehension of the disease. When excessive, this state of mind has been observed to predispose to attacks. In Europe it has been epidemic under the playful title of *choleromania*. It has every where preceded the disease itself, as

"Coming events cast their shadows before them."

It is the duty of medical men to labor against this unpropitious panic, by inspiring public confidence in the preventive and curative resources of the profession; which are, in fact, very

great, as might be shown, did our limits admit of the necessary statistical views. They may perhaps make a part of our next article.

We have been often asked, will the Epidemic Cholera reach America? To which we make this public, and we hope, satisfactory reply—

"The wind bloweth where it listeth, thou hearest the sound thereof, but cannot tell whence it cometh or whither it goeth."

D.

POSTSCRIPT.

Since closing our review, a work on Cholera, consisting of two reports of the Royal Academy of Medicine, of France, to the Minister of the interior, has reached us. We shall notice it fully in the next number. Meanwhile, we offer our readers the following summary of the symptoms and treatment, which we find near the close of the second report, dated Sept. 13, 1831.

Neither should we confound epidemic cholera with sporadic or indigenous cholera, if we may use the expression. The latter, which is observed almost every where and at the same time with the diseases of summer and autumn, is less acute, less violent and fatal: it never passes beyond a certain extent of country, and attacks but a very small number of persons at the same time.

The description of the symptomatology of the cholera may be recapitulated as follow: physicians will easily recognize it by these characters:

Epigastral pains and anxieties; repeated vomitings, frequent stools; the matters voided consisting at first of recently indigested substances, soon appear fluid, whitish, flocculent; violent cramps in the superior and inferior extremities; coldness of the body and abdomen; suppression of urine; the skin of the extremities, of the feet especially, pale, humid and wrinkled; tongue white, moist and cold; peculiar expression of the countenance; distortion of the features, hippocratic face; respiration scarcely perceptible; sinking and disappearance of the pulse.

Now, as it concerns the treatment, we may say in general, that, in the first period of the disease, which is characterized by coldness of the surface of the body, and concentration of the vitality internally, we would advise frictions, either dry or compound; the radiation of caloric to the surface, by every appropriate means; warm covering; vapour baths, various rubefacients, cuppings, sinapisms and blisters.

It is also with the view of bringing back the circulation to the circumference, in very young persons of a robust constitution, that bleeding has been happily employed at the period of imminence, and as near as possible to the moment of invasion of the disease.

In this period may also be administered internally and with advantage, very warm aromatic infusions; such diffusable stimulants as the irritability of the stomach will permit; aromatic oils combined with alcohol and in conjunction with laudanum, either ammonia, James's powder, Dover's powder, &c.

The special alteration of the gastro intestinal mucous membranes has been combated by calomel, rhubarb, aloes, magnesia, either separately or in combination, giving them according to the indications furnished by the individual constitution.

At the nervous period, with typhoid tendency, and even with mutations or transformations of the cholera into typhus—cinchona, musk, valerian, bismuth, camphor oil of cajeput have been given, together with such other means as are generally adopted in the treatment of typhus.

With the view of attacking the prominent symptoms of the disease separately, there have been given,

For the purpose of arresting the vomitings, Riverious' draught, opium cold drinks, and ice;

Against the frequency of the stools, injections containing landanum into the rectum, aromatic frictions upon the abdomen, and sinapisms;

Against the pains and contractions of the muscles, frictions with the oil of turpentine, or oil of cajeput; and these means have appeared so much the more efficacious, when they concurrently tended to warm and stimulate the chilled surfaces of the skin, and rouse the diminished energy of the nervous function, so remarkable in this disease.

RESIGNATION.

Dr. Drake has resigned the Chair of Clinical Medicine, in the Medical College of Ohio.

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ANNUAL CATALOGUE

OF THE

MEDICAL COLLEGE OF OHIO.

SESSION 1831-2.

CINCINNATI.

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The Annual Commencement for conferring the degree of Doctor of Medicine, was held on the 7th of March, 1832. The following are the names of the individuals on whom the Degree was conferrred.

Prior G. Fore,	Kentucky.
Isaac T. Teller,	Ohio.
Moses M'Clintic,	Virginia.
William R. Falconer,	Louisiana.
James Hood,	Ohio.
Leonard Randal,	Tennessee.
P. W. Martin,	do.

R. T. Peyton,	Virginia.
Hiram Cox,	Ohio.
J. G. W. Mott,	Louisiana.
J. P. Andrew,	Ohio.
Jos. C. Carter,	Kentucky.
J. M. Duke,	Do.
James Lorimer,	Ohio.
Calvin Lea,	Mississippi.
Jos. S. Hornsby,	Kentucky.
Chas. B. New,	Do.
R. B. Winlock,	Do.
Geo. W. Branch,	New York.
Chas. S. Tulley,	Indiana.
Edward Dawes,	Ohio.
Henry Craig,	Kentucky.
William Steele,	Ohio.
A. M. Newman,	Virginia.
Harvey Lewis,	Kentucky.
Wm. B. Towles,	Virginia.
W. L. Chamblin,	South Carolina.
J. W. Bigelow,	Ohio.
B. Easton,	Indiana.
Richard Eberle,	Pennsylvania.
Hiel Morrison,	Ohio.
Ed. De Loughery,	Maryland.
James Hough,	Virginia.
Wm. Edwards,	South Carolina.
Adam Dickey,	Ohio.
John T. Shotwell,	Kentucky.

Total 36.

The Medical Faculty is as follows:—

JEDEDIAH COBB, M. D., *Professor of Anatomy and Physiology.*

THOMAS D. MITCHELL, M. D., *Professor of Chemistry and Parmacy*

JAMES M. STAUGHTON, M. D., *Professor of Surgery.*

CHARLES E. PIERSON, M. D. *Professor of Materia Medica.*

JOHN MOORHEAD, M. D., *Professor of Obstetrics and Diseases of Women and Children.*

JOHN EBERLE, M. D., *Professor of Theory and Practice of Medicine.*

UNIVERSITY OF PENNSYLVANIA.

The number of students in this institution during the last winter, was eight hundred and forty-nine, of whom three hundred and ninety were attending the Medical Lectures. At a medical commencement, held March 29th, 1832, the Degree of Doctor of Medicine was conferred upon 136 gentlemen.

UNIVERSITY OF MARYLAND.

At a public commencement held in the University on the 19th March, 1832, the Degree of Dr. of Medicine was conferred upon 61 gentlemen.

TRANSYLVANIA UNIVERSITY.

There were attending the Lectures of this institution, during the past winter, 213 Medical students.

THE WESTERN JOURNAL OF THE MEDICAL AND PHYSICAL SCIENCES.

Edited by DANIEL DRAKE, M. D. AND JAMES C. FINLEY, M. D.

The publisher of this Journal, the oldest of the kind in the western country, with peculiar pleasure informs his subscribers, that the increased patronage of the Profession will enable him to present the succeeding volume in an improved form, and to make such arrangements as will add greatly to its intrinsic value.

The senior Editor has engaged to devote to it his undivided leisure, with a determination to impart to it the character which the public have a right to expect from a work presented under the sanction of his name; and the junior Editor, having received assurances of regular and permanent assistance from a number of the most accomplished physicians of the west, will be enabled to assist him in imparting to its pages an interest and variety, in some degree, commensurate with the increasing expectations of the profession.

In addition to these arrangements, the publisher hopes by the incentives of a wide circulation, and of a liberal pecuniary compensation, to induce a general co-operation on the part of our subscribers, to furnish such cases of novelty and interest as so extensive a region must at all times afford.

Subscribers have a ready perception of the responsibilities of Editors, but they are less sensitive to the reciprocal obligation which rests upon them to supply the materials which impart value and interest to periodical publications.

The public have not been ignorant of the existence of causes which have hitherto retarded the progress of medical improvement in this country, but, we hope, the time has now arrived when the Profession, disencumbered of adverse influences, will co-operate harmoniously in establishing an independent literature which, by eliciting the talents, and adapting itself to the circumstances of the country, will possess irresistible claims upon their patronage.

Communications to be directed, free of expense, to the publisher. Reports of cases, &c. on subjects of general interest to the Profession, will be liberally and promptly paid for.

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